

Improving Utilization of the Handoff Process for the Ground/Air Transport Team

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Chapter 1: INTRODUCTION

Problem

Relevant patient health information is often lost or omitted between healthcare providers during the patient care handoff process. This results in increased error, reduced safety, and a lower quality of care.

Background of the Problem/Literature that Supports the Problem

In the U.S. and around the world, there is a major effort to reduce cost, increase quality, and improve patient safety in hospitals. This focus is not new, but as the shortage of the healthcare providers continues to rise and the demand for quality and safety increases, there is a greater call for strategies that result in cost reduction, improved safety for patients, and higher quality. Effective communication among healthcare providers during patient handoff is critical to provide high quality, safe, and cost-effective care. Poor communication is a major issue and warrants a great deal of attention. The data indicates the number one cause of sentinel events in U.S. hospitals is ineffective communication (The Joint Commission, 2012). The data also reveals that medical errors have been determined to be the third leading cause of death in the United States (Robins & Dai, 2015). An estimated 80% of these errors can be attributed to failure in communication (Joint Commission, 2012). More than 400,000 patients die annually due to preventable medical errors (Robins & Dai, 2015). In addition, it is estimated that medical errors costs Americans between \$17 billion and \$29 billion per year in hospitals nationwide (Institute of Medicine, 1999).

There is a plethora of evidence to support using a standardized patient care handoff process (Abraham, Kannampallil, & Patel, 2014; Boat & Speath, 2013; Hudson et al., 2015;

Moon, Gonzales, and Woods, 2015; Paine & Millman, 2009). Several studies determined best practice is to develop interventions that promote a safe, effective, and structured handoff communication tool to reduce errors, increase safety, and improve quality of care (Herrigel et al., 2016; Nagpal et al., 2010; Meisel et. al., 2015). In 2006, the Joint Commission mandated that all healthcare facilities institute some form of standardization to improve patient safety during the handoff process. Additionally, one of the National Patient Safety Goals (NPSG) recommends use of a clear and concise patient care handoff process (Paine & Millman, 2009). This is clear evidence that use of a standardized handoff process is current best practice.

The PICOT question for this project is as follows: For patients being transferred from a health situation requiring emergency medical intervention or from a referring hospital to Lutheran Hospital by the Lutheran Air/Ground Transport Team, will staff education regarding the importance of consistently utilizing a standardized patient care handoff process/form increase team members' knowledge/awareness and promote adherence to its use.

Practice/Knowledge Gap

In the last 10 years, was no formal education or competency check-off regarding the use of a standardized patient care hand-off process among Lutheran Hospital for the Air/Ground transport team (Personal Communication, 2019). Lutheran Hospital has a specific policy regarding the patient care handoff process for the transport team (Appendix A). There was an existing Lutheran Hospital transport hand-off form available and being used, but was not used consistently. A copy of the Lutheran Hospital handoff form can be viewed in Appendix B. The goal of this project was to close the poor communication gap by educating the air/ground transport team (RNs and paramedics) regarding the use of a standardized patient care handoff process resulting in the utilization of the existing patient care handoff form. Support for this

project came from Lutheran Air/Ground transport leadership as they worked to develop a culture of safety, reduced errors, and improved quality of care. Support was received for this project from Lutheran transport team management and the Lutheran Hospital transport team educator (paramedic) through personal communication (Personal Communication, 2019).

NEEDS ASSESSMENT

Summary of Necessity of the Project

At Lutheran Hospital, there was a process in place to guide the members of the transport team during a patient care handoff using a standardized process/form, but it was not done well or used consistently (Personal Communication, 2019). The patient care handoff occurs when patient care is transferred from the air or ground transport team to the receiving RN, Nurse Practitioner (NP), Physician's Assistant (PA) or Medical Doctor (MD) staff at Lutheran Hospital in the emergency department, ICU, or other area of the hospital. This project was necessary to help the Lutheran Hospital transport team promote improved communication during patient care handoff for several reasons. The first goal was to improve patient outcomes and reduce the chance of error. The second goal was to ensure compliance with the mandates set forth by the Joint Commission (JC). The third goal was to increase knowledge and awareness of the transport team staff regarding the importance of consistently using a standardized patient care handoff process/form. The need was identified by the project manager to educate the RNs and paramedics on the Lutheran transport team (air/ground) to improve communication during the patient care handoff by consistently using a standardized patient care handoff process/form.

DNP PROJECT OVERVIEW

Scope of the Project

This project included registered nurses and paramedics on the transport team at Lutheran Hospital for both the ground team and flight team. Lutheran Hospital transport management and educators were also involved. It did not include EMTs because they are not routinely involved in the communication process during a patient care transport/handoff. This project did not include patient interaction. Patients were impacted positively as communication during the patient care handoff process was improved. The improvement in communication was the result of the proposed intervention. The intervention was an hour-long presentation to the Lutheran Hospital transport RNs and paramedics regarding the consistent use of a standardized patient care handoff process. The team was educated on evidenced-based practice to be used during the patient care handoff process.

Stakeholders

The stakeholders included the project manager (David Mansfield, RN) from USF, the project advisor (Dr. Spath, RN, PhD) from USF, the manager of the transport team at Lutheran Hospital (Zach Stoppenhagen, paramedic), and the nurses/paramedics on the Lutheran transport team (Air and Ground). Other stakeholders included the Executive Director of the transport team (Scot Tuttle, RN, MBA), the educator (Tony Stimpson, paramedic), and ultimately indirectly the patients who are transported.

BUDGET and RESOURCES

Cost

Direct costs were estimated at \$11,645.00 and in-kind costs were estimated at \$7,875.00. The direct costs and in-kind costs were calculated based on estimated salaries times the number of project hours to perform each task. These costs consisted primarily of projected salaries of people involved in the project including the Lutheran IRB team and Dr. Spath as well as the

Lutheran transport team leadership, educators, and staff. The project was financially feasible because Lutheran was willing to spend the salary dollars on efforts to reduce errors, increase safety, and improve quality of care (Personal Communication, 2019). The short-term expense was worth the long-term reduction in cost, increased safety, reduced errors, and improved quality of care. This included the IRB team, management salaries, educator salaries, and salaries of the transport RNs and paramedics (Appendix C).

Description of Resources

These salaries were paid by Lutheran Hospital for the hour-long presentation to the transport team staff regarding the use of a standardized patient care handoff process. This was a mandatory monthly meeting for the transport team. Salary expenses were also paid by the University of Saint Francis (USF) for the project advisor's time and the USF IRB Committee's time. Additional resources included paper and ink for handouts and surveys used during the presentation (intervention). The transport team education room on the Lutheran campus was utilized for the presentation. The time incurred on this project by the project manager was significant.

PROCESS and OUTCOMES

General Timeline

The general timeline included a pre-intervention chart audit (210 charts) completed on August 23, 2019, a dissemination plan on November 13, 2019, a meeting with the project champions on December 12, 2019, a meeting with the transport team manager on December 15, 2019, and administration of the pre-intervention survey on January 21, 2019. The presentation to transport team staff (intervention) occurred on January 21, 2020 and post-intervention survey

took place on February 18th, 2020. The post-intervention chart audit occurred on April 24th, 2020 and the plan for sustainability took place on May 29, 2020.

Setting and Target Population

The setting for this project was at Lutheran Hospital of Fort Wayne. Lutheran Hospital is a private 396-bed tertiary for-profit healthcare facility. It serves as one of two Level – II verified adult and pediatric trauma centers in Fort Wayne. Lutheran Hospital also serves as northeast Indiana's only kidney transplant center, stroke center, and chest pain center with percutaneous coronary intervention (PCI) and Resuscitation accreditation. Lutheran used 3 mobile ICU ambulances and 3 helicopters located throughout the region. The presentation (intervention) took place in the education room at Lutheran Hospital on Tuesday, January 21, 2020. Exclusion criterion included Emergency Medical Technicians (EMT's). EMTs were excluded because they did not routinely give patient care report and hand over patient care to another provider.

Expected Outcomes Described

There were several expected outcomes for this project. The first was an increased knowledge and awareness of the transport RNs and paramedics regarding the importance of using a standardized patient care handoff/form as evidenced by the pre-intervention survey and post-intervention survey results. The second was an increased understanding of evidence based recommendations regarding the patient care handoff process. The third was expected outcome is to see an increase in compliance in terms of the use of the Lutheran transport team handoff form. The expectation was that the existing Lutheran Hospital patient care handoff form be completely filled out including history/recent events, vital signs, meds given prior to transport, and meds given during transport.

RISK ANALYSIS

Risk Analysis

There were no physical risks to being part of this project. The potential risk was the inconvenience of the time required to take the provided questionnaire and listen to the presentation on the use of a standardized handoff process. Also, some nurses or paramedics may have felt anxious about completing a questionnaire. This was mitigated by clearly explaining the process, describing the risks/benefits, and answering questions. The benefit of attending the presentation was learning about how the use of a standardized handoff process is best practice (evidence-based) and potentially increased the patient's safety, decreased the likelihood of error, and improved the patient's outcome. No compensation was provided for the participants' time other than the hourly rate paid by Lutheran for attending a mandatory meeting. There were no long terms risks identified for the participants. Informed consent was obtained. The participants were not directly or indirectly identifiable during this project as the participant's name remained anonymous. The names remained anonymous because the project manager was the only person with access to the results. Individual information collected from the questionnaire was kept with utmost confidentiality and maintained exclusively by the project manager in a locked filing cabinet at the project manager's residence. The overall results from the questionnaire were shared with the Lutheran Hospital transport team leadership and the University of Saint Francis faculty, but no names or identifiable information were associated with the questionnaire. In addition, the participant's name was not associated with the information collected regarding the use of the Lutheran Hospital transport team handoff form. Participation was completely voluntary. The participant could have elected to withdraw his or her permission to use the responses from the questionnaire at any time. A signed copy of the consent was provided for each participant. See Appendix D. There was no intention of deception for this project.

CHAPTER 2: SYNTHESIS OF SUPPORTING EVIDENCE/LITERATURE AND PROJECT FRAMEWORK

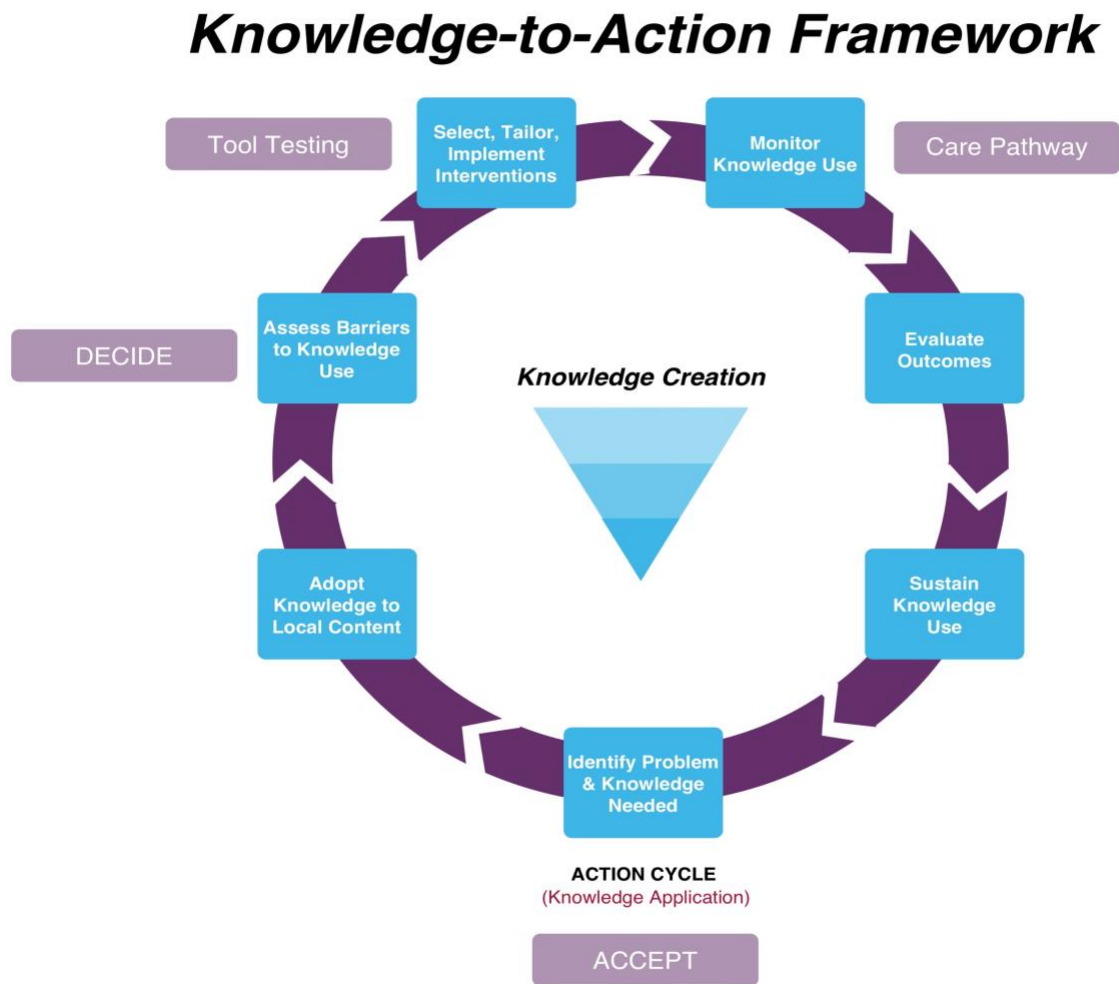
Relevant Theory and Concepts

A framework used for this project is the Knowledge-to-Action Model (KTA). This framework was developed by the Canadian Institutes of Health Research (CIHR) and has played a critical role in evidence-based practice and translation of knowledge efforts (Graham, Logan, Harrison, Straus, Tetroe, Caswell, Robinson, 2006).

It is considered the best source of definitions for ideas related to knowledge transfer, research implementation, dissemination, diffusion, knowledge exchange, and knowledge translation. The KTA model has seven phases including problem identification as well as the relevant research, adoption of the knowledge to the local context, barriers to knowledge use assessment, interventions to implement the use of knowledge, monitoring of knowledge use, outcome of use evaluation, and sustained knowledge use. This model served as an excellent framework for this project and was used as a guide to take what the research showed regarding the use of a standardized patient care handoff process and translated the knowledge to be implemented into practice for the transport team (air/ground) at Lutheran Hospital. The seven phases of this model were used for this project. The first phase of the KTA model was identification of the problem. The project manager identified the problem of poor communication at the Lutheran Hospital transport team during the patient care handoff. The research showed this led to increased errors, reductions in patient quality, and decreased patient safety (Paine & Millman, 2009). Phase 2 addressed knowledge that was adopted to the local context. The information was presented to the staff at Lutheran Hospital regarding the importance of using a standardized handoff process/form. Phase 3 looked at barriers to use that

were identified by interviewing Lutheran Hospital transport team managers, leads, educators, and staff. An informal interview was conducting on September 16, 2019 demonstrating the top three barriers to be lack of knowledge, lack of compliance, and perceived lack of time to complete the form. Phase 4 was the intervention that was presented at the monthly staff meeting. Content of the presentation (intervention) included information regarding mandates set forth by the Joint Commission and best practice for patient care handoffs to reduce errors, increase safety, and improve quality of care. Phase 5 pertained to monitoring knowledge use that was assessed by both a pre/post survey as well as measuring the use of a standardized handoff form before and after the presentation. Phase 6 addressed the outcome of use that was assessed by measuring use of the standardized handoff form after presentation on the importance of using the standardized handoff form and the post presentation survey. In addition, the degree of handoff form completion was assessed. Phase 7 had to do with sustained knowledge use. This was included as continued measurement of the use of the standardized handoff form for the transport team at Lutheran Hospital (Graham & Tetroe, 2006). The transport team manager asked for the project manager to hand this project off to one of the flight team members for Quality Improvement (QI) purposes after the project managers job is complete.

Figure 1.



Note. Adapted from researchgate. (<http://researchgate.net>). Copyright 2020.

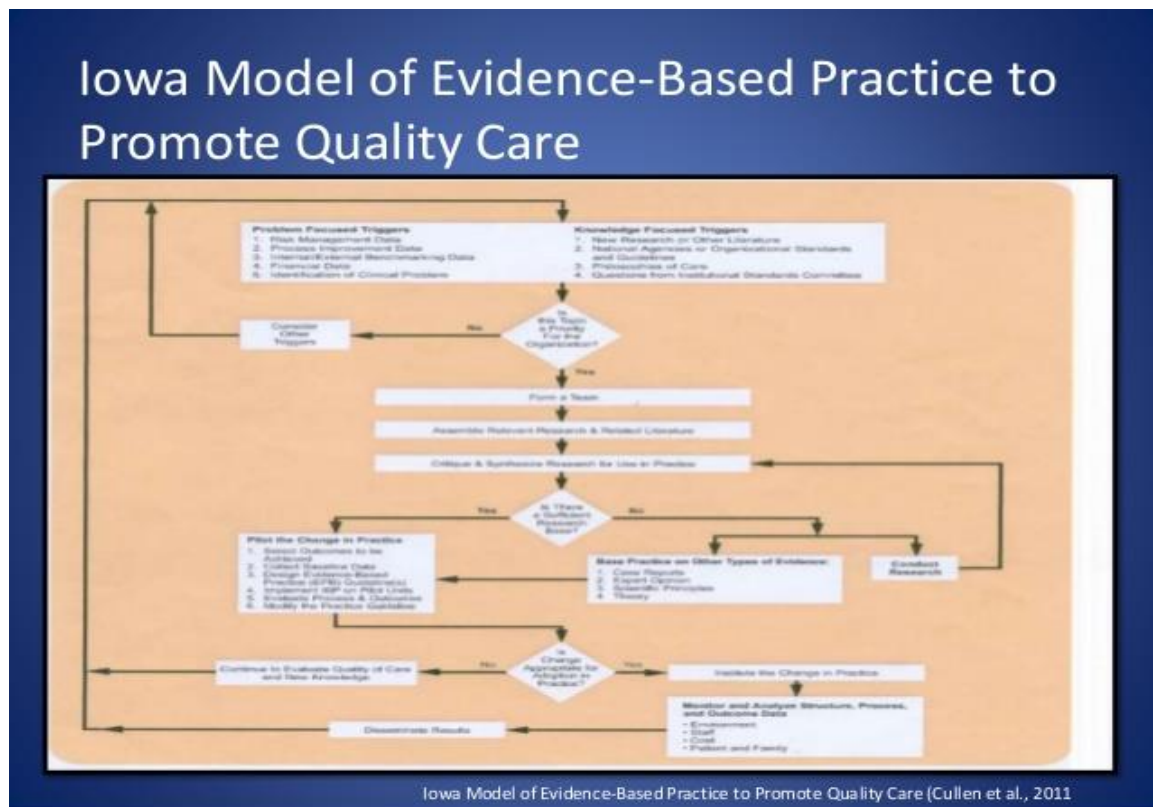
Model

The IOWA model is another model selected to guide the project because standardized patient care handoff process was developed based on EBP to improve the quality of care (Boat & Speath, 2013). Based on the evidence, the literature demonstrated that using a standardized patient care handoff process decreased errors, increased patient safety, and improved quality of care (Abraham, Kannampallil, & Patel, 2014; Boat & Speath, 2013; Hudson et al., 2015; Moon, Gonzales, and Woods, 2015; Paine & Millman, 2009). The IOWA Model asks seven relevant questions. First, is there sufficient evidence to change practice? There was overwhelming evidence in the literature that consistently using a standardized patient care handoff process increased safety, reduced errors, and improved quality of care (Boat & Speath, 2013). The section below on synthesizing the supporting evidence discusses the evidence in detail. Second, are the findings across the studies consistent? The research demonstrated consistency in all areas of healthcare. This included shift to shift, department to department, RN to RN, MD to MD, from a referring hospital or scene of an accident to the receiving hospital and many other settings. Third, are the type and quality of findings sufficient? Yes, the findings came from a broad range of sources including well respected peer-reviewed, professional, and academic journals. Fourth, do the studies have clinical relevance? Yes, because this process was directly applicable to the care provided numerous times throughout the day. Fifth, can the studies be generalized to your population? Yes. Studies were completed on not only my specific area of study, but many other areas in healthcare including ER, OR, ICU, between physicians, and RN's. The studies performed in the areas of ER, OR, ICU, between physicians, and RN's were also generalized to the transport team population as well. Sixth, are the findings of the study feasible? There was no question. The findings were not only feasible, but reasonable. By feasible, it meant this process could be done. Some staff were already doing it, but not all staff.

This process was reasonable because while it was more work, the benefits of implementing this process outweighed the added burden of a standardized patient care handoff and using the patient care handoff form. Finally, how appropriate is the risk-benefit ratio? The risk-benefit ratio was very appropriate because this risk was very low and the potential benefit was very high. The risk was low because there is no direct risk to the patient. There was some risk for the nurse or paramedic because of the extra time it may have taken to complete the standardized process/form. Also, it took time to educate the nurses and paramedics to consistently use the form. The benefit was that it may prevent a serious error from occurring. This benefitted the patient, family, receiving hospital, and nurse or paramedic. It may have prevented a lawsuit and possibly saved Lutheran thousands of dollars and time. See figure 2.

Figure 2.

Iowa Model of Evidence-Based Practice to Promote Quality of Care



Note. Adapted from Medscape.com. (<http://www.medscape.com>). Copyright 2020.

Relevant Theory

A theory used for this project is that of Kurt Lewin's known as Lewin's Force Field Analysis. This is a classic theory that sees change as a dynamic balance of forces (driving and restraining) working in opposition within the confines of an organization. The driving forces move the team in the direction of change and the restraining forces move the team away from change. Lewin's theory is comprised of 3 phases. The first phase is the unfreezing phase where the driving forces are increased or the restraining forces are decreased to allow change to begin.

The second phase is the moving or changing phase is where the organization is moved toward state where the driving forces and restraining forces are in equilibrium. The third is the refreezing phase where the change is implemented and change is sustained. It was imperative to assess both the driving and restraining forces throughout the change process. This allowed recognition of the power of the forces as well as the opportunity to involve individual team members within the organization, develop new perspectives, build trust, and incorporate lasting change into the organization (Wirth, 2004).

For the transport team (air/ground) at Lutheran Hospital, the team was initially in the beginning of the unfreezing stage. The team was aware of the patient care handoff process/form, but was not using it consistently. There had been emails from the Lutheran transport team leadership encouraging the use of the standardized process and handoff form, but the process had not been made mandatory. The transport team staff were aware they were to use the process/form, but did not fully understand the rationale. The rationale was considered to be best practice and that which was mandated by the Joint Commission. In 2006, the Joint Commission mandated that all healthcare facilities institute a standardized patient care handoff process (Paine & Millman, 2009). The “why” also included the reduction in error, increased patient safety, and improvement in quality of care. The moving or changing phase began when the presentation (intervention) regarding the importance of consistently using a standardized handoff process/form took place. The refreezing phase occurred as behavior change was monitored and supported to maintain best practice long term. Using the standardized process/form became the normal process and was utilized consistently. See Figure 3.

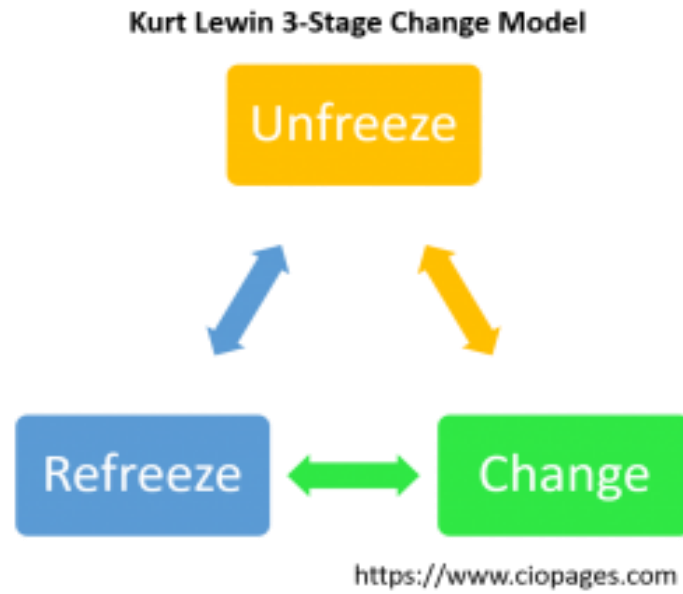


Figure 3. Lewin's Change Model

Integration of Project Framework with Supporting Evidence and Literature

Synthesis of Supporting Evidence

An exhaustive review of literature related to patient care handoff was performed. Approximately 100 articles were given a cursory review, 55 articles were read, and 10 articles are included in the review. The literature search included key words using CINAHL, PubMed (Medline) (USF Library), EBSCOHOST, Google Scholar, Cochrane Database of Systematic Reviews, Joanna Briggs Institute Evidence-Based Summaries, TRIP Database (USF Library), ASU DNP Final Project Collection, DNP Scholarly Project Repository, ERIC (Education Resources Information Center) (USF Library), and Emcare (Ovid) (USF Library). Key words used were patient handoff, transport team, air ambulance, mobile ICU, communication, cost-effective, morbidity, mortality, checklist, safety, communication errors, and quality. The dates were initially limited to 2015 to present, but revised to 1989-2019.

The frameworks for this project (Knowledge-to-Action, Lewin's Change Theory, and IOWA Model) were integrated using supporting evidence and literature. Literature on improved communication during patient care handoff using a standardized process has been widely published in the last fifteen to twenty years in nursing, medical journals, health administration literature, and at the national healthcare organization level. One literature review found 36 peer-reviewed articles published in English from February 1, 1983 to June 15, 2012 focusing on the evaluation of handoff tools and its use. A systematic review of the literature regarding handoff use and evaluation was performed to determine the nature, methodological, and theoretical frameworks used to evaluate the use handoff tools. The adequacy and appropriateness was also investigated in achieving standardization goals (Abraham, Kannampallil, and Patel, 2014). Another review of literature reviewed more than 500 articles, but identified 31 specifically dealing with patient care handoffs. Twenty-four were identified as having recommendations for using a structured handoff process during patient transfer. Several recommendations included using a standardized process, completing urgent clinical tasks prior to information transfer, limiting handoff to patient specific discussion, requiring all pertinent team members be present, and provision of team skills and communication training. Most of these papers were cross-sectional studies. All papers were from 2000 or later. Fourteen articles were published in 2010 or beyond. All papers were published in English (Segall et al, 2012). Finally, a review of literature was performed in January and February 2011 using 18 articles reporting 37 statistical associations related to the nature of the patient care handoff process and the outcome. Four of the 18 studies were randomized controlled trials. The study quality was assessed using 11 quality indicators (Foster & Manser, 2012).

Published content specific to patient care handoff process was placed into several different categories: (1) Benefits of using a handoff tool (2) Reducing errors during patient care handoff (3) Barriers to using a standardized handoff process (4) Strategies to improve patient care handoff. The focus of this literature review was on how using a standardized handoff process reduced error, increased safety, and improved quality of care (Paine & Millman, 2009).

Most of the literature regarding improved communication during patient care handoff came from peer reviewed scholarly journals. The literature consistently showed two major topics. First, poor communication among healthcare providers was common during patient handoff in many healthcare settings. Furthermore, the literature showed poor communication resulted in increased cost, decreased quality, and potentially a less safe environment. Second, the use of a standardized form of communication or handoff lead to improved quality of care, increased safety, and cost savings. The literature varied in the specific type or form of standardized format used. One study used a well-known mnemonic communication tool “I PUT PATIENTS FIRST” (Moon, Gonzales, and Woods, 2015). Studies showed utilization of a structured and standardized communication tool decreased the incidence of sentinel events, medical errors, and ultimately a decrease in mortality and morbidity (Boat & Speath, 2013). By instituting a structured and consistent handoff communication tool during transfer of care, the aim was to decrease errors, reduce cost, and improve quality of care (Hudson et al., 2015). Much of the research showed using an efficient, standardized, structured handoff tool during patient care handoff prevents adverse outcomes by reducing errors (Abraham, Kannampallil, and Patel, 2014; Boat & Speath, 2013; Hudson et al., 2015; Moon, Gonzales, and Woods, 2015; Paine & Millman, 2009). Furthermore, the literature suggested the use of a tool resulted in a reduction of errors and increased quality (Boat & Speath, 2013)

In a study performed in 2015, the findings demonstrated a 27% increase in morbidity due to poor communication during the time of patient care handoff (Hudson et al., 2015). The same study also showed a 43% increase in mortality was due to lack of communication during patient care handoff compared to overall hospital morbidity (Hudson et al., 2015). It is crucial that handoff communication between the members of the transport team and the receiving providers at Lutheran Hospital is reliable, effective, and clear. According to the Agency for Healthcare Research and Quality (AHRQ) (2011), errors occur when patient information is not effectively passed along to the next health care provider. A prime example of this is when a RN or paramedic hands off the patient to a receiving healthcare provider at Lutheran Hospital. If there is a failure to pass along important patient information, a negative patient outcome such as a sentinel event can take place. Another study showed poor communication during patient handoff resulted in increased mortality, a decrease in patient outcomes, and a reduction in quality of care while increasing cost (Funk et al., 2016). Finally, the research indicates the number one reason for the occurrence of sentinel events in American hospitals is ineffective communication (The Joint Commission, 2014). Next, several sub-topics identified in the literature will be presented.

The literature suggests collaboration among healthcare providers is required to promote effective handoff communication between the transport RN or paramedic and the receiving healthcare provider. This results in error reduction and increased quality of care (Torres, 2009). Several barriers to effective patient handoff were identified in the literature. One of the perceived barriers identified was high acuity and production pressure of fast pace environments. Patients transported by air/ground are usually high acuity patients. The ER, ICU, or other receiving unit at Lutheran is very fast paced. This may lead to incomplete and inaccurate transfer of information during patient handoff. A study suggested this could be improved or

solved by delegating responsibilities, using a checklist, and even debriefing. The recommendation was to develop interventions that promote a safe, effective, and structured handoff communication tool to reduce or eliminate errors (Nagpal et al., 2010). In addition to error reduction, increased patient safety, and improved outcomes, cost reduction, morbidity and mortality were also examined. According to the literature, the main reason for increased morbidity and mortality in clinical practice is ineffective communication as previously mentioned. The research demonstrated there was an increase in morbidity/mortality in the absence of a consistent use of an efficient hand off tool or protocol (Dufault et al., 2010). Next, a brief summary of the evidence will be provided as well as preliminary identification of gaps in the literature will be explored.

Upon completion of the literature review, each article was given a brief review to determine relevance to the goal of the DNP project. This brief review entailed reading the title/abstract and noting the location where it was published. Next, the articles were read in detail based on certain criteria. The criteria are three-fold. First, the article must be published in English. Second, the articles must be from a peer-reviewed journal or reputable and professional health organization. Third, the article must contain information related to communication among healthcare providers during patient care handoff.

Two major gaps were identified in the literature. First, the literature clearly indicates a standardized patient care handoff process is to be utilized to provide best practice care. However, it does not indicate exactly how this should be done. Some patient care handoff processes are verbal, some are written, some require face-to-face interaction, and some processes are a combination thereof. The patient care handoff process for the transport team at Lutheran is a combination of verbal, written, and face-to-face communication. The patient care handoff

process can be complex depending on the context, but it would be helpful to have additional research on whether verbal, written, face-to-face, or some combination thereof would be considered best practice. The second gap is similar to the first. There are many tools that have been created, but there is no consistency in terms of which tools have been shown to be the best. The best tool may be context specific, but further research would be helpful for providing guidance on which tool results in the best outcomes.

In summary of supporting evidence, the literature indicates using a standardized patient care handoff process reduces errors, increases patient safety, and improves quality of care. There are a variety of ways to do this. A tool or form can be used. The process can be verbal, written, or both. In some contexts, the handoff process is done over the phone. For the transport team, it's always done face-to-face and a combination of written and verbal communication is utilized. Regardless of the exact process, the literature demonstrates best practice is to consistently use a standardized patient care handoff process.

CHAPTER 3: PROJECT DESIGN

Methodology

Project design plan. The project design type for this project is Quality Improvement (QI). A pre-intervention/post-intervention questionnaire and a chart audit are tools that were used for this project. Both of these tools were useful because they measured both qualitative and quantitative data/information. The questionnaire included both qualitative and quantitative data while the chart audit was exclusively quantitative. These tools measured the effectiveness of the intervention by evaluating the knowledge of the staff regarding the use of a standardized patient care handoff process/form as well as its importance. The value and effectiveness of the

intervention was used to assess compliance (use) of the patient care handoff form via a chart audit post-intervention.

The aim of the project was to improve awareness and knowledge of the impact/importance of improved communication using a standardized process based on EBP during patient care handoff to increase patient safety and quality of care. Knowledge and awareness was measured quantitatively and qualitatively through the pre-intervention and post-intervention survey (Appendix E). Authorization to use and adapt a questionnaire developed by Suzanne Wright RN, PhD was obtained. See Appendix F. Another aim was to increase the use of a standardized handoff process/handoff form in clinical practice. This was measured by conducting a pre-intervention and post-intervention chart audit. See Appendix M.

The intervention plan was to deliver an hour-long presentation using Power Point to educate Lutheran Hospital transport team RNs and paramedics regarding the use of a standardized patient care handoff process/form based on EBP. This included the use of statistics, best practice, and what is expected by the Joint Commission.

The presentation was recorded live on Google Meet and can also be viewed at a later time. The link for this presentation can be found in [Aladtec.com/Lutheran](https://aladtec.com/Lutheran).

Ethical considerations. Ethical considerations are rooted in a commitment to service and respect for human kind. It requires rational examination and evaluation of that which is valuable, desirable, or good in terms of health maintenance and/or restoration. For this project, it was imperative to act with moral courage, do what is right for the patient, and inquire as to what is the right and responsible course of action (Moran et al., 2020). The participants were present for the presentation (intervention) at the monthly grand rounds meeting and received a comprehensive overview of the project's purpose. They were asked to sign the consent form.

The participants did not receive a stipend. However, they did receive an hourly wage from Lutheran Hospital for attending the meeting as the monthly Grand Round meeting was mandatory. There were no long terms risks identified for the participants. As mentioned previously, participants were not directly or indirectly identifiable during this project as the participants name remained anonymous. Individual information collected from the questionnaire was kept with utmost confidentiality and maintained exclusively by the project manager in a locked filing cabinet. All electronic data was secured on a password protected laptop and kept in a secure location. The participant's name was not associated with the information collected regarding the use of the Lutheran Hospital transport team handoff form.

International Review Board (IRB) approval from University of Saint Francis (USF) and Lutheran Hospital was granted. The project manager and project advisor worked very closely for an extended period of time to complete the application process for USF IRB approval (See Appendix G). Application to the Lutheran Hospital IRB committee was submitted in early August and a presentation of the project was given to the Lutheran IRB committee on Wednesday August 21, 2019 at 1700 hours. Lutheran Hospital IRB approval was granted on August 22, 2019 (See Appendix H). Subsequently, changes were made to the survey for this project. IRB approval was resubmitted. The Lutheran Hospital IRB Committee met and granted approval of the changes on October 17, 2019. See Appendix I. CITI training was completed on August 3, 2019. See Appendix J.

Project schedule. The schedule for this project can be viewed in Appendix K.

Work breakdown. The initial work required for this project was to identify a problem for this project. The problem identified was poor communication among healthcare providers during a patient care handoff. An exhaustive literature search was performed to identify a best

practice solution to this problem. Evidence-based practice and best practice strategies were identified in the literature to determine the best strategies to solve the problem of poor communication leading to medical errors, reduced patient safety, and decreased quality of care. A deficiency was noted in the patient care handoff process for the Lutheran Hospital transport team. The literature indicates that to provide safe care, reduce errors, and improve the overall quality of care, a standardized patient care handoff process needs to be in place. The transport team at Lutheran had a process in place, but it is not used consistently and the background information or “the why” was not well understood by the transport team staff (RNs and paramedics) at Lutheran. This was based on experience of the project manager’s colleagues on the transport team (Personal communication, 2019). A meeting with faculty at the University of Saint Francis (USF) was arranged to get approval for the project idea. The idea for the project was approved by Dr. Spath. Subsequently, the project manager had a meeting with the manager of the transport team and permission was granted to move forward with the project at Lutheran Hospital. The project manager met with the educator for the transport team to inform him of the project and to get feedback regarding data collection on utilization of the standardized hand off process, perceived barriers, and acquisition of data related to the use of the hand off process/hand off form. At the time of the interview on September 16, 2019, the utilization or compliance of using the handoff form was not tracked, the perceived barriers were identified as previously managed, and utilization of the standardized handoff process was not monitored.

The next step was to obtain Institutional Review Board (IRB) approval from Lutheran Hospital. This required presentation of the project before the IRB Committee at Lutheran Hospital in the Medical Office Building (MOB) 2. Lutheran Hospital IRB approval was granted on August 22, 2019. Minor changes were made to the survey and IRB approval was

resubmitted. Lutheran Hospital IRB approval was granted for the survey changes on October 17, 2019. IRB approval for this project from USF was pursued in early October and granted on October 14, 2019.

After written permission from Lutheran Hospital (See Appendix L), an initial chart audit assessing compliance of the handoff form utilization was completed on 112 ground charts and 40 air charts on August 23, 2019. A follow up chart audit was performed on April 24th, 2020 on 112 ground charts and 40 air charts. A survey evaluating knowledge of the standardized patient care handoff process and utilization of the handoff form was given at the monthly Grand Rounds meeting on January 7th just prior to the intervention. A follow up survey was given at the following month's Grand Rounds meeting on February 4, 2020. A comparison of the data or results was analyzed to evaluate the effectiveness of the intervention.

The intervention consisted of an hour-long presentation to the members of the Lutheran Hospital transport team at the monthly mandatory Grand Rounds meeting held in the education room at 1700. This meeting is held on the first Tuesday of every month and is aired live and recorded using Google Meet. Members of the transport team were required to complete a post-test indicating they attended the meeting in person, watched it live on Google Meet, or watched the recoding of the presentation.

A presentation to the USF faculty and fellow students was done during week 12 at USF regarding this project. After the survey results and chart audit data was collected (April 24th, 2020), the results were carefully and meticulously analyzed with Dr. Spath. Changes in survey responses were evaluated.

Implementation Methods

Step by step process described. On January 21st, 2020, the project manager delivered a one-hour long presentation to the RNs, paramedics, emergency medical technicians (EMTs), and management of the Lutheran Hospital transport team. The transport team RNs and paramedics were selected specifically because they are the only providers that routinely participate in the patient care handoff process. The presentation took place in the education room for the transport team on the Lutheran Hospital campus. It was anticipated to have greater than 50 participants to be present. Additional staff attended the presentation live via Google Meet making the total number of active participants to be 75. Written consent was obtained from the participants, the pre-intervention survey was handed out to the RNs and paramedics for completion and collected, a copy of the PowerPoint presentation was given to the entire transport team in the form of a handout, and the oral presentation by the project manager was done. For participants watching the presentation by Google Meet, the informed consent was emailed to them, signed, and returned to the project manager. The plan was to email the pre-intervention survey and handouts to the participants not present in person. There was not a specific protocol to guide the standardized patient care handoff process, yet there was an expectation that standardized patient care handoff process occurred for each patient transport (Personal Communication, 2019).

Teaching plan. The teaching plan was a one hour long presentation to the RNs, paramedics, emergency medical technicians, and management of the Lutheran Hospital transport team. PowerPoint was used as part of the teaching plan. A brief overview of the project was given during the introduction and opportunity for questions/answers was given at the end of the presentation. Objectives for the presentation were presented next. Google Meet attendees were

asked questions via the comment section in Google Meet. These questions were monitored by the educator and addressed by the project manager.

Learning objectives. Several learning objectives were identified for the presentation. At the conclusion of the presentation, the participants were able to describe best practice for a patient care handoff, explained expectations of the Joint Commission regarding utilization of a standardized patient care handoff process, recognized the benefits of using a standardized patient care handoff process, and stated what the research demonstrates regarding the incidence of error, patient safety, and quality of care. See Appendix N.

Method of instruction. The method of instruction was an oral presentation at the monthly Grand Rounds meeting for the transport team on January 21, 2020. Power Point was used and the presentation was recorded live on Google Meet to be viewed live or the recording of the session can be viewed at a later date.

Method of assessment. The method of assessment consisted of a comparison of pre-intervention and post-intervention survey results as well as a pre-intervention audit and post-intervention audit. The survey assessed knowledge and awareness of the benefits of using a standardized patient care handoff form, knowledge regarding what the research indicates in terms of safety and quality of care when a standardized patient care handoff process is utilized, and understanding of best practice regarding the patient care handoff process. The pre-intervention and post-intervention surveys were evaluated for changes in terms of increased or decreased knowledge and understanding. The chart audits assessed for increased compliance of the use of the patient care handoff form and assessed for the degree of completion of the patient care handoff form. Degree of completion was broken down into history/recent events, vital signs, meds given prior to transport, and meds given during transport.

Measures, tools, and instruments. The four variables measured in this project included knowledge and awareness of the importance of using a standardized patient care handoff process, understanding of current evidence-based practice regarding patient care handoff, compliance in terms of using the standardized handoff form, and the degree to which the form was completed. There are several sections on the Lutheran Air/Ground Handoff Report (See Appendix B) and often not all of the sections were fully completed. The completion of the history/recent events, vital signs, meds given prior to transport, and meds given during transport were analyzed. The tools (used for this project) included a survey (See Appendix E) and a chart audit. The chart audit measured the use of the Lutheran Air/Ground Handoff Report and also evaluated the degree of completion of this form. Four sections of the Lutheran Air/Ground Handoff Report were evaluated to assess degree of completion including history/recent events, vital signs, meds given prior to transport, and meds given during transport. The tool was adapted from a survey developed by Suzanne Wright, PhD. The tool measured the participants' ability to describe best practice for a patient care handoff, ability to explain expectations of the Joint Commission regarding utilization of a standardized patient care handoff process, ability to recognize the benefits of using a standardized patient care handoff process, ability to state what the research demonstrated regarding the incidence of error, patient safety, quality of care, and the importance of consistently using a standardized patient care handoff process. Dr. Wright has published several articles and used this tool for one of her studies regarding communication among healthcare providers during a patient care handoff. The chart audit form was created by the project manager using an Excel spreadsheet (See Appendix M).

Evaluation plan

The plan for evaluation consisted of determining if the proposed outcomes of the project were met. The first proposed outcome was that the air and ground transport team would demonstrate improved knowledge and awareness of the importance of using a standardized patient care handoff process/form as best practice. The second proposed outcome was to improve the compliance of the handoff team in using the patient care handoff form.

Plan to evaluate the results of the project. The project manager and project advisor met to evaluate the results of the project. The results of the project were evaluated by identifying trends and changes in results. The data was evaluated for increased compliance, degree of completion of patient care handoff forms, improved understanding of best practice regarding the patient care handoff process, and knowledge/awareness of the importance of consistently using a standardized patient care handoff process.

Data sources. The data for the chart audit came from patient transport charts retrieved from the electronic medical record (EMR) used by the Lutheran Hospital transport team known as EMSCharts.com (Personal Communication, 2019). This data was collected by the project manager. Data was also collected from the results of the pre-intervention survey and the post-intervention survey by the project manager.

Methods for collection of data. The data was collected by accessing EMSCharts.com to determine if a patient care handoff form was completed. The pre-intervention chart audit reviewed the first 210 air/ground charts beginning January 1, 2019 through January 30, 2019. The post-intervention audit looked at charts beginning February 4th, 2020 and the first 210 air/ground charts were selected for review. Then the patient care handoff form was assessed for

degree of completion. The second method for data collection was to have the RNs and paramedics for the Lutheran transport team complete a pre-intervention and post-intervention survey. This data was collected by the project manager on January 7, 2020 and February 4, 2020.

Data analysis plan. A description of the denominators used to measure the outcomes for this project are as follows. The knowledge and awareness of Lutheran Hospital transport RNs and paramedics (air/ground) regarding the consistent use of a standardized process utilized during patient handoff was measured using a pre-intervention survey and a post-intervention Survey. A chart audit measured RN/paramedic compliance regarding the utilization of the standardized Lutheran Hospital patient care handoff form prior to the intervention and post-intervention. The RN and paramedics' understanding of evidence-based practice regarding the patient care handoff process was assessed and the degree of completion of patient care handoff form was measured. The handoff form had four major sections including history/recent events, vital signs, meds given prior to transport, and meds given during transport. Sometimes a patient care handoff was filled out by the RN or paramedic, but not all of it. Each patient care handoff was assessed regarding its degree of completion. If just the history/recent history and meds given during transport were listed, the form was considered 50% complete. If just the vital signs were filled in, the form was considered 25% completed. The expectation was that 100% of the patient care handoff form was completed.

Dissemination Plan

Plan for USF Presentation. A presentation of the project outcomes was given to fellow students and faculty at USF in August of 2020. It began with an introduction and background to establish a need for the project as well as to highlight its relevance to nursing practice. A

thorough overview of the literature review was explored. The clinical question and project plan (including budget) was reviewed. The methods used for the project was presented which included the project design, population studied, IRB approval, and tools used from data collection and measurements. The project findings were reported in an organized and systematic fashion and a description of the sample/ clinical setting for QI was presented. Following this, the results of the data outcomes organized around the improvement process was shared. Any unanticipated findings were noted. Implications of the data for practice and opportunities for improvement were discussed in detail. Findings of significance and their implications were presented first. The limitations of the data were provided as well as opportunity for future improvement were given. Finally, the expected implementation process was presented and time for questions were allowed from the audience.

Verbal or written executive summary to DNP site/stakeholders. The executive summary was shared with Lutheran Hospital stakeholders. The project outcomes were presented to the Lutheran Hospital management team and members of the transport team at the monthly Grand Rounds meeting following the conclusion of the project. Opportunity for questions, answers, and feedback was given.

CHAPTER 4: RESULTS AND INTERPRETATION

Process Evaluation – Process evaluation took place after the project was implemented and the data was collected. Principles of process evaluation included gathering data to describe the change and how the change was made. It also included collecting relevant process and outcome data and assessing multilevel factors affecting implementation, process, outcome, and transportability. The process evaluation was rigorous, scholarly, and demonstrated a significant increase in knowledge and awareness of the benefits of using a standardized patient care handoff

process as a result of the intervention. There was also a significant increase in compliance regarding use of the handoff form. A project should possess internal validity. Internal validity has to do with the extent to which a study avoids the possibility that a factor other than the intervention contributed to the change in outcome. Strong internal validity results in an increased level of confidence that a desired change is the result of a specific intervention. External validity has to do with the degree to which the results of a project can be generalized to similar settings (White et al., 2016). For this project, internal validity was crucial. The data demonstrated a significant increase in knowledge, awareness, and use of the handoff form after the intervention. Generalizability was not expected, but transportability was key. Transportability is the ability to implement the intervention in a different setting and achieve a similar outcome. When evaluating this project or process, it was important to assess internal validity and transportability (White et al., 2016). The results of this project demonstrated both internal validity and transportability.

The process of evaluating the pre-intervention and post-intervention chart audit results were clear cut. The same methods were used to collect and evaluate the data. The process of collecting and evaluating the data was time consuming and labor intensive, but straight forward. It was easy to access the electronic medical record using EMScharts.com. The search criteria were easy to navigate and user friendly. Each chart selected was opened within a given range of dates and determined if the handoff form was uploaded. Then the degree of completion was determined. The possibilities were 0%, 25%, 50%, 75%, 100%, or NA. If a handoff form was not uploaded at all, then NA was selected for not applicable. The results were entered into SPSS. Collecting and evaluating the data from the pre-intervention and post-intervention survey was less clear and more challenging to interpret. The examination of the outcome variables were

analyzed using SPSS. The demographics were also surveyed. Although seventeen questions were asked in the survey, this project focused on five specific questions. The five questions of focus were questions twelve, thirteen, fourteen, fifteen, and sixteen on the survey. The responses to these five questions were measured, evaluated, and analyzed. The data was collected via the pre/post survey from 20 participants present for the intervention. The intervention was also viewed live by 50 team members via Google Meet. The intervention was also recorded from those team members that could not be present in person or via Google Meet. Data was not collected from the team members present via Google Meet. This would be a consideration moving forward.

Outcomes Evaluation

Outcome 2: To improve the compliance of the handoff team in using the patient care handoff form.

The outcomes for the pre-intervention and post-intervention chart audit were clear. The answer was either yes or no and then the degree of completion was determined. Data from SPSS was used to examine frequencies, mode, mean, range, standard deviation, and variance.

Compliance for use of the handoff form went from 20% to 96% for the ground team and 5% to 68% for the flight team. The goal was to achieve a 70% rate of compliance. This was achieved for the ground team, but the air team fell slightly short at 68%. See Appendix R.

The degree of completion of the handoff form was measured before and after the intervention. Some nurses/paramedics completed the form, but not all of it. The goal was for 80% of the handoff forms to be fully completed. The post-intervention data reveals no 25% completions and there are significantly more 50%, 75%, and 100% completions. In fact, the 100% category is the greatest statistic. The NA category decreased significantly indicating a

much higher percentage of charts had uploaded handoff forms. Ground fell short at 65% and Air fell short at 58%. See Appendix S.

The use of the standardized handoff process including the form was measured before and after the intervention. This was based on question 3 in the survey. A paired-samples t-test was conducted to compare the use of the standardized process including the handoff form before the handoff presentation and after the presentation. There was a significant difference in the scores for use of the standardized handoff process including the form ($M=1.39$, $SD=0.502$) and after the presentation ($M=3.06$, $SD=0.639$) conditions; $t(17)=-8.416$, $p=0.000$. These results suggest that there was a significant increase in use of the standardized handoff process including the form when comparing the post-use with the pre-use. See Appendix Z.

Therefore, based on the data comparisons of both the chart audit and the self-reported responses on the survey, an increase in participants' use of the handoff process and form did occur and the projected indicators for Outcome 2 were met.

Participants:

Demographic data was collected for years of service and number of hours worked per week. For years of service on the transport team, the range was 15, the mode was 3, the mean 5.4, the mean was 3, and the standard deviation was 4.84. For hours worked on the transport team, the range was 28, the mode was 36, the mean was 29, and the standard deviation was 11.08. See Appendices W and X.

Outcome 1: The air and ground transport team will demonstrate improved knowledge and awareness of the importance of using a standardized patient care handoff process/form as best practice.

Awareness of the standardized handoff process was measured using the survey based on question 12 before and after the intervention. A paired-samples t-test was conducted to compare awareness of the standardized handoff process before the standardized handoff presentation and after the presentation. There was a significant difference in the scores for pre-awareness ($M=2.5$, $SD=0.857$) and after the presentation ($M=4.11$, $SD=0.832$) conditions; $t(17)=-5.3$, $p=0.000$. These results suggest that there was a significant increase in awareness when comparing the post-awareness with the pre-awareness. See Appendix X.

Knowledge of the standardized handoff process was subdivided into two categories including knowledge of evidence and knowledge of process. Knowledge of evidence referred to the knowledge that research demonstrated reduced errors, improved quality of care, and is evidence-based. Knowledge of process referred to the knowledge that a standardized patient care handoff process also resulted in reduced errors, improved quality of care, and better outcomes. Knowledge of evidence was measured before and after the intervention. This was based on questions 13 and 16 in the survey. A paired-samples t-test was conducted to compare knowledge of evidence before the handoff presentation and after the presentation. There was a significant difference in the scores for knowledge of evidence before ($M=6.72$, $SD=1.07$) and after the presentation ($M=8.83$, $SD=0.92$); $t(17)=-5.71$, $p=0.000$. These results suggest that there was a significant increase in knowledge of evidence when comparing the post-knowledge of evidence with the pre-knowledge of evidence. See Appendix Y.

Knowledge of process was also measured before and after the intervention. This was based on questions 14 and 15 in the survey. A paired-samples t-test was conducted to compare knowledge of process before the handoff presentation and after

the presentation. There was a significant difference in the scores for knowledge of process (M=4.72, SD=1.07) and after the presentation (M=9.00, SD=0.59); $t(17) = -16.097$, $p = 0.000$. These results suggest that there was a significant increase in knowledge of process when comparing the post-knowledge of process with the pre-knowledge of process. See Appendix Y.

Therefore, based on the data comparisons, there was an increase in both knowledge and awareness of the standardized handoff process based on responses on the survey. Thus, the projected indicators for Outcome 1 were met.

Qualitative Results from Survey

The following comments were taken from open-ended questions on the pre- and post-intervention surveys and added support to the quantitative results. There were many comments, and so these were categorized to provide further data to support the proposed outcomes of the project regarding participants' knowledge and awareness of use of a standardized process/form for handoffs. The open-ended question asked, "What are the positive aspects of current handoff process?"

Pre-Intervention comments:

The comments included "less risk for mistakes", "may catch things not given in report", and "provides thorough communication".

Post-Intervention Comments:

The comments included mention of "continuity of care", "great communication", "provides continued information", and the "importance of documenting interventions and their response".

These comments support the quantitative findings regarding participants' awareness and knowledge that a standardized handoff process reduces error, increases safety, and improves quality of care. Although the pre-intervention and post-intervention comments were not remarkably different, it does show participants' overall recognition of the importance of the handoff process, despite the lack of use of the facility process as reflected in the pre-intervention chart audit.

CHAPTER 5: LEADERSHIP AND MANAGEMENT OF THE PROJECT

Organization Culture

To determine the culture of an organization, an assessment must be performed. An organizational assessment can be thought of as a systematic process for gathering important information about organizational performance and the factors that influence performance (Moran et al., 2020). This assessment is important because it is useful in identifying strengths and weaknesses of the organization. It also provides information when preparing to make important decisions and helps determine if an organization is ready to move forward with needed change.

Various models exist to assist an organization in defining and improving its performance by analysis of its environment, capacity, and motivation. Each model provides a clear-cut methodology to diagnose institutional strengths and weaknesses by assessing performance, environment, capacity, and motivation (Moran et al., 2020).

Properly assessing an organization requires a systematic approach and a thorough understanding of the mission, vision, strategic plan, history, and culture. Furthermore, it is crucial to learn about organizational effectiveness, efficiencies, and financial stability. Organizational capacity including strategic leadership and management as well as IT infrastructure is also part of the assessment (Moran et al., 2020).

Organizations such as Lutheran Hospital develop goals that are built into the system and are guided by protocols and procedures that move the system forward in meeting their goals. One of the most important aspects of an organization is its culture. An organization can only be as successful as its culture. In a positive culture, there is open communication, ideas are shared, and trust is imparted to the team. The culture of an organization has to do modes of behaviors. Value is the bridge between culture and action. Organizational culture includes existing processes that help constitute the major elements of the environment. A good culture is characterized by a strong sense of accountability and positive results. It is critical to be aware of an organization's readiness for project implementation. By definition, culture can be thought as something that develops over time through interaction, development, and sharing certain values and beliefs (Pinto & Slevin, 1987). For the Lutheran Hospital transport team, the culture was positive. The transport team staff shared common beliefs in terms of doing what's right for the patient and were committed to the mission and vision of Lutheran Hospital. For example, the team worked diligently to get en route to the referring agency or hospital in a timely manner, promoted excellence in communication during the call and adhered to the written protocols developed by the medical director. There was a strong sense of accountability and achieving positive results. The transport team possessed a set of shared values and beliefs. However, like any group of employees, there is some level of resistance to change. Any new change that requires extra work may be met with resistance. For example, the team has been required to make additional preparations for transport due to the COVID 19 virus in terms of personal protective equipment (PPE). Normally, something of this nature was met with resistance, but the team understood the gravity of the situation and resistance was minimal (Personal Communication, 2020). The only thing that is constant in healthcare is change. The project

manager's assessment of the staff is that they were ready and reasonably open to change (Personal Communication, 2019).

The culture in general at Lutheran was one of safety, excellence in customer service, and improved clinical outcomes. A SWOT analysis performed by the project manager prior to implementation looked at the strengths, weaknesses, opportunities, and threats to the project to take place at Lutheran. The strengths included a positive culture, relatively low employee turnover, strong leadership, and willingness of staff to adopt best practice techniques. Weaknesses included some team members potential resistance to change, strong personalities, and a larger/geographically spread out group of people making communication and monitoring more challenging. The opportunity with this project included a reduction in error by adopting best practice processes for patient care handoff. There were many potential threats such as resistance from key people including transport team management, the transport team educator, potentially upper administration, the IRB committee, COVID 19, and the transport team staff. In terms of safety, the air and ground team had a safety call with the pilots and dispatch center to identify any safety issues twice daily. The transport team also had a safety committee. They were charged with identifying and resolving transport team related safety issues. Service excellence was taught, practiced, and monitored throughout the entire hospital. It was taught upon hire, reinforced during employment, and monitored on an ongoing basis (Personal Communication, 2020). A survey was left with the referring staff for every patient transfer completed. A follow up phone call was made after each transport to update the referring staff on the patient's condition and gratitude was expressed for calling Lutheran for the transport.

Regarding improved clinical outcomes, each department had certain area specific goals. For example, in-patient areas at Lutheran evaluated core measures, catheter-associated urinary

tract infections (CAUTIs), central line bloodstream infections (CLABSI), etc. Other than auditing each chart to ensure adequate documentation and appropriate medical care, the transport team is not specifically accountable for many of the things the in-patient areas are accountable for. However, there was a strong commitment to overall excellence which influences the culture of the organization. As previously mentioned, each patient transport record is audited by the transport team educator.

The majority of the team are in their 30's or 40's. This team is more professionally experienced than a medical floor in the hospital for example that might hire RNs right out of school. It is required to have at least five years of critical care experience as a RN or paramedic to be eligible for the transport team.

Change Strategy

The change strategy utilized was Kurt Lewin's change model which included unfreezing, the change phase, and refreezing. The unfreezing phase occurred when the staff initially learned about using the patient care handoff form. However, the driving forces were not stronger than the restraining forces and no significant change occurred. The change phase occurred when implementation (presentation) took place. At that time, the driving forces became greater than the restraining forces and change occurred. The team experiencing the refreezing phase over a 3-month period as the driving forces and restraining forces equilibrated, equalized and stabilized. The effectiveness was evaluated on April 24th with the chart audit that assessed for completion of the handoff forms. Unfreezing began one year ago when the standardized handoff process was introduced. As previously mentioned, the driving forces were not stronger than the restraining forces and no significant change occurred. The change phase occurred during the

implementation/presentation to the transport team in January 2020 when it was communicated that this process is best practice, is a standard operating procedure (SOP), and it is an expectation of the Lutheran Hospital transport team management. The process was defined as use of a standardized handoff procedure/use of the handoff report. The driving forces became greater than the restraining forces and change occurred. The refreezing stage was a work in progress as staff learned to incorporate this practice for every patient care transport. This practice will be sustained because one of the flight nurses will continue to monitor compliance as a requirement for Lutheran's clinical ladder program. She was charged with reinforcing the practice of using a standardized handoff process as she conducts ongoing evaluation and compliance through chart audits (Personal Communication, 2020).

Leadership Style

Leadership has to do with control, teamwork, decision making, and issues related to empowerment. There are various styles of leadership including coach, visionary, servant, autocratic, laissez-faire, democratic, pacesetter, and transformational. The leadership style at Lutheran is that of servant leadership. The main goal of this style of leadership is for the leader to serve. The servant leader puts the needs of the employees above him or herself and shares the power. He or she helps the employees develop and perform to their maximum potential. Rather than the employees working to serve the leader, the employees work to serve the people or patients in this case. There are six aspects of servant leadership including valuing people, developing people, building community, displaying authenticity, providing leadership, and sharing leadership (Green, Rodriguez, Wheeler, & Baggerly-Hinojosa, 2015). The transport team leadership exemplified this by believing in the staff, serving other's needs before their own, and listening in a non-judgmental manner. The transport team's leadership encouraged

opportunities for learning and growth, modeling appropriate behavior, and reinforcing positive behavior. Building community occurred through collaborative work with others and reaching out to the community through public relation (PR) and training events. Authenticity was evident through open accountability with the staff and maintaining integrity and trust with transport team members. Provision of leadership took place through communication of the future vision for the team and setting goals. Sharing leadership for the transport team leaders occurred through sharing power, releasing control, sharing status, and promoting others. For example, each shift had a lead nurse or paramedic. This person could make decisions for the team without the immediate direction of the transport team leadership. This was very helpful during the night shift and weekends. The employees were empowered and equipped to serve the patients they transported. The executive director, manager, and supervisor had high expectations, expected work hard, provided excellence in service, and provided high quality care. These were reasonable expectations from a leadership standpoint. They were not demanding or dictator-like. They were not laissez-fair either (Personal Communication, 2020).

For the project called Improving Utilization of the Handoff Process for the Ground/Air Transport Team, project manager (David Mansfield) also adhered to the servant leadership model. The project manager worked to develop employees and allowed them to perform to their maximum potential by providing them with the needed information and tools to do their job. The leadership style of the project manager meshed nicely with the leadership style of leadership team at Lutheran. It was also helpful that the project manager and transport team manager have worked together for many years.

Inter-professional Collaboration

Interprofessional collaboration is crucial for a successful career as a Certified Registered Nurse Anesthetist (CRNA) and all other health professionals. There are two key elements of interprofessional collaborative practice in the healthcare environment. The first key element is the vision that interprofessional collaborative practice promotes high-quality, safe, and patient-centered care. This requires ongoing development of interprofessional competency by health profession students and other professional students. This is a work in progress that prepares students for when they enter the workforce. It is critical that all professionals put their egos aside and work together collaboratively to improve patient outcomes. Excellent communication among providers is key (Interprofessional Education Collaborative, IPEC, 2016).

The second element is to work collaboratively with colleagues of other professions while maintaining a climate of mutual respect and shared values. Many of these elements or competencies overlap, but the idea is to employ teamwork, communication, and expert knowledge to provide effective, cost-efficient, and high-quality care. We all have our roles, responsibilities, and possess certain clinical knowledge. This is key to positive health outcomes because if providers share knowledge, communicate, and respect each other, the patient benefits immensely (Interprofessional Education Collaborative, IPEC, 2016). For this project, the project manager was required to work collaboratively with pharmacists and medical doctors on the Lutheran IRB Committee. The project manager also worked with paramedics, transport team management, educators, and other various professional disciplines to move the project forward.

A barrier to having a vision that interprofessional collaborative practice promotes high-quality, safe, patient-centered care can come from lack of leadership and communication. It is

crucial that leaders share this vision with the entire organization in every healthcare related field. In addition, there must be buy-in from the clinicians/professionals. A solution for this is mandatory education for all involved and require it as an expectation or competency for the organization. It may also be prudent to incentivize the desired behavior and develop a reward system. The project manager communicated this vision at the beginning of the implementation at Lutheran Hospital. The staff were encouraged to work in a collaborative manner with other professions to promote a safe, high-quality, patient centered experience for the patients served by the transport team.

Barrier to mutual respect and shared values are strong egos, competitive spirit, and pride. The solution for this comes from leadership as well as members of the organization. A high-quality presentation on how mutual respect and having shared values results in good patient outcomes can be instrumental in moving the needle forward in this regard. In terms of sustaining the elements that promote interprofessional collaborative practice, it will require ongoing education, making it an expectation, and engraining it in the culture of the organization.

Collaboration involves sharing, power, interdependency, and partnership. Working in collaboration serves the needs of both patients and professionals. The literature says collaboration must be understood as more than just a professional endeavor, but as a human process as well. Collaboration can be complex, but if professionals engage in shared values, the patient will receive high quality care (D'amour, Ferrada-videla, Rodriguez, & Beaulieu, 2005).

Another article purports professional teams are an emerging phenomenon because the research demonstrates that effective teamwork improves the quality of care. When health professionals work in collaboration, the quality of care increases. There is also a reduction in cost which is appealing to hospital administration. It's a win-win (McNair, 2005).

Interprofessional collaboration is key for all health professionals to master. This will only benefit each other, the patient, and the bottom line. Effective collaboration results in efficient, cost-effective, and high-quality care.

At Lutheran, there was a great deal of inter-professional collaboration that occurred 24 hours a day seven days a week. The leaders of the transport team collaborated with upper management at Lutheran Hospital regarding the strategy for the transport team. This required marketing efforts and reaching out to potential customers. Customers included referring hospitals, fire departments, police, and EMS services. Many of these customers had a choice in which helicopter or ambulance service they called to transport their patients. In fact, the transport team had a dedicated marketing specialist that reached out to potential and current customers on a regular basis. He sent follow up letters to the referring hospital or EMS staff regarding the condition of all helicopter transports. The transport team leaders and staff collaborated with the dispatch center, emergency department, Cath Lab, ICU, and other departments regarding patients, policy, and process improvement. The transport team leadership collaborated with the organization that provides the helicopters and pilots. Previously, there was a contract with an organization called Air Methods that provided aircraft and pilots for the air team. However, a contract was signed in January 2020 with a company called Air Evac. With this contract, Lutheran received three new helicopters and pilots. This process required a great deal of collaboration and will require significant ongoing collaboration. Collaboration was required with the community and outlying areas as the helicopter or ground team attended various community events to promote education, awareness, and good public relations. Lutheran transport team had a Neonatal Intensive Care Unit (NICU) team and a maternal team. This required ongoing communication with the maternal and NICU staff to revise policies,

procedures, and processes to provide excellent service to Lutheran's customers (referring hospital) and patients.

Collaboration between the project manager and the Lutheran Transport team leadership was very good. The manager was responsive to emails and provided input regarding the project. He provided all the needed tools including increased access to the data base to allow the project manager to conduct the pre-intervention and post-intervention audit. The project manager was able to meet with him on multiple occasions within a week of request for most meetings. One exception was when he was on vacation, it took about a week and half before a meeting could be scheduled. Collaboration with the transport team educator went well. The project manager met with him several times in person and he provided his support for the project. Finally, collaboration with the IRB team at Lutheran was a new experience. They were very serious and required timely action and specific information. They had a very specific process and criteria they followed. They provided quick and timely feedback regarding their needs and requirements for the project. It was an excellent collaborative experience due to quick response, effective communication, efficiency by all those involved.

Interprofessional collaboration was required for implementation as well. The project manager communicated with the transport team manager regarding the content of the Power Point presentation. In addition, the computer/project was set up and running prior to the presentation by the transport team educator and the transport team manager set up Google Meet prior to the meeting so that all team members attending the meeting/presentation could view the project manager's presentation. Collaboration with Dr. Spath took place so that she could attend the implementation in person. Communication regarding the meeting was already in place because this meeting occurs the 3rd Tuesday of every month and the project manager was

considered a guest speaker. Two transport team members were selected to hand out the pre-intervention survey. Collaboration occurred during the presentation between the project manager, transport team educator, and transport team manager to answer questions from staff in person and via Google Meet.

Conflict Management

Conflict management is never easy, but if handled in a proper manner can lead to the success of the team. Conflict management occurs during growth and change. Not everyone is going to agree. There are good employees and not so good employees. The not so good employees must be either progressed to good employees or be moved out of the organization. Leaders do not always agree with other leaders. Employees may not agree with leaders. One department may not agree with another department. All of these situations can create conflict. At Lutheran Hospital, it appears conflict is dealt with in the proper manner. If conflict occurs, both sides of the story are given and assessed. This is done appropriately behind closed doors. A resolution is achieved and communicated (D'amour, Ferrada-videla, Rodriguez, & Beaulieu, 2005). For this project, there was no conflict per se. However, there was initially a misunderstanding between the project advisor and project manager prior to the beginning of the project regarding a clear picture of what was required of the project. After a few meetings, this miscommunication was cleared up and the goal for the project became clearer. Once the goal for the project became clear, the site for implementation was initially supposed to be at Elkhart General Hospital (EGH). However, after discussion with the interim Chief CRNA, it became clear that EGH would not be a good site for implementation due to high turnover, a new interim Chief CRNA, frequent turnover of OR/PACU manager, and other internal issues. In addition, the site was an hour and forty-five-minute drive from the project manager's home making site

visits challenging in terms of time commitment. Thus, Lutheran Hospital was selected for the implementation site. Lutheran worked out very well because of the proximity to project manager's home and the project manager's familiarity with the Lutheran Air and Ground team processes due to recent employment with the team. During the implementation at Lutheran, the evidence and reasoning for conducting a standardized handoff including a handoff form was clearly presented. Lutheran had a Standard Operating Procedure (SOP) that clearly stated this process is expected for each patient transport. Historically, noncompliance in terms of not using the handoff form had not been reinforced. There were no consequences for not following the SOP. The transport team did have legitimate questions after the presentation/implementation, but no conflict was demonstrated. It's is hard to measure buy-in, but the staff seemed to understand the reason for the standardized handoff process. The process did require extra work for the RN or paramedic, but it seemed to be accepted by the transport team staff. Prior to implementation, some staff members expressed that the handoff form was extra work, time consuming, and not needed. However, this was addressed during implementation by explaining the requirements by the Joint Commission, the expectations of Lutheran Hospital (SOP), and what the data showed regarding improved safety, error reduction, and increased quality of care. The questions were answered in an appropriate manner to the satisfaction of the staff.

CHAPTER 6: DISCUSSION

Impact of Project

This project had a significant and lasting impact on the transport team for Lutheran Hospital. Not only was there a significant increase in the use of the handoff process/handoff form for both air and ground, but this process will continue to be supported and monitored on an

ongoing basis (Personal Communication, Zach Stoppenhagen, 2020). The team went from little understanding of the importance of using a standardized handoff process and low handoff form use compliance to demonstration of the importance of using a standardized handoff process and significant increase in handoff form use compliance. This was confirmed by the pre-implementation audit and post-implementation audit as well as the pre-implementation survey and post-implementation survey. The impact on the team was so great that one of the full-time flight nurses at the Portland Lutheran Air base took this project on as an ongoing task to monitor compliance and provide follow up (Personal Communication, Abby Harvey, RN, CFRN, 2020). The Lutheran Air/Ground management and educators were impacted because of the increased level of understanding regarding the importance of a standardized handoff process. The transport team manager verbalized the importance of understanding the requirements of Joint Commission as well as what the research demonstrated in terms of evidence-based care. Managers in healthcare and department educators want to be compliant in terms of government requirements and evidence-based practice. The impact on the individual staff members was significant as evidenced by the marked increase in usage of the standardized handoff as shown in Chapter 4. Completing the handoff form has gone from sparse and intermittent to being used on a consistent basis. This project impacted the staff at the receiving facilities because they had a completed handoff with all of the information related to the patient's transport. This impacted the staff in all areas where the transport team delivers patients including Cath Lab, ER, ICU, and all other areas in the hospital. The project manager was impacted as well. The results of the pre-implementation chart audit and post-implementation chart audit showed a profound increase in compliance with the handoff form. This project took a lot of time and hard work. The results of the post-implementation audit demonstrated the success of the intervention. The Lutheran IRB

Committee was impacted when the results were shared with this committee. The IRB Committee was pleased to hear of the success and outcome of the project. Finally, the patients were impacted because research demonstrated using a standardized handoff process increased the quality of care and reduced error. The impact on patients was difficult to measure in this setting and was outside of the scope of this project. However, as the literature demonstrated, using a standardized handoff improves patient care.

Sustainability

This project was sustained indefinitely. As previously mentioned, the manager of the transport team tasked one of the full-time flight nurses to continue this project on an ongoing basis. Compliance was monitored on an ongoing basis. The project manager handed off the project to the full-time flight nurse at the conclusion of this project. The pre-intervention data and post-intervention data was shared with the flight nurse. The flight nurse will continue to monitor the data through audits and ensure compliance. This may require ongoing education and follow up with certain transport nurses or paramedics who demonstrate non-compliance. The project has a high likelihood of long term success due to its importance to the transport team for three reasons. First, it was required by the Joint Commission. Compliance with the Joint Commission is paramount to remain in business and receive payment for services. Second, a standardized handoff was considered best practice. Hospitals do everything they can to use best practice because of improved outcomes. Third, there was buy-in from the staff, management, and educators. This was key to maintaining ongoing success and sustainability.

Contributing Factors: Success or Lack of Success

This project was a huge success. The flight team had some work to do. However, they

made significant progress. The flight team went from 5% compliance to 68% compliance. The ground team went from 20% compliance to 96% compliance. These were significant changes by any standard. The members of the transport team really embraced the challenge. The flight team has a little more work to do in terms of compliance.

One of the greatest contributing factors to the success of the project was the support from the transport team manager. This project could not have occurred without his support. The support from the transport team educators and staff was also a critical contributing factor. Dr. Mary Spath (project advisor) also played a significant role in making this project a success. Her support, feedback, guidance, and recommendations were crucial. She was instrumental in providing guidance regarding the developing statistics in Chapter 4. The Lutheran Hospital and University of Saint Francis IRB Committees were instrumental in making this project a success. The IRB at Lutheran provided feedback on how to revise the questionnaire and provided guidance prior to their approval. The work for Suzanne M. Wright, PhD, CRNA also helped contribute to the success of the project. With her written permission, a survey she used for one of her projects was able to be adapted and used for this project. Her work regarding the use of a standardized handoff process served as a launching pad for this project. The project manager's classmates served as a contributing factor for the success of this project by providing support, answering questions, providing feedback, constructive criticism, and just listening. Finally, the faculty from the University of Saint Francis played a key role in the success of this project by providing feedback throughout the project. These faculty included Dr. Winegarden, Dr. Osborne, Dr. Clark, Dr. Mueller, Dr. King, and Dr. Lown. Each of them contributed to the success of this project by comments on papers or projects, verbal feedback after a presentation, feedback on DNP project assignments, conference calls, and one of one meetings. They

provided encouragement and constructive criticism both of which lead to the success of this endeavor.

While this project is seen by the project manager as a success because of the increased rate of compliance regarding the use of the standardized handoff process and increase knowledge of best practice, there were a couple things that could have been done better. The pre-implementation and post-implementation audit achieved the goal and was straight forward. However, the pre-implementation and post-implementation survey was more challenging and less clear. If this project was to be repeated, the project manager would develop the pre-implementation and post-implementation survey differently. Assistance would be requested from an expert in statistics and/or the project manager would employ a higher level of statistical understanding and use. Another task that could have been done differently was how the data was collected for the pre-implementation and post-implementation survey. The project manager projected a higher number of attendees for the implementation. The project manager hoped for at least 30 to 40 attendees in person. However, there were only 20 attendees. However, there were at 50 attendees present for the implementation remotely through Google Meet. The project manager was unable to survey the attendees present remotely. If this project was to be performed again, the strategy would be to survey (pre and post) both the attendees in person and remotely. This served as a great learning experience.

Addition to the Body of Knowledge about the Practice/Process Change

This project had a greater addition to the body of knowledge regarding practice/process change than anticipated. The transport team was thoroughly educated on the standard operating procedure (SOP) regarding the required standardized handoff process, the requirements of the

Joint Commission, and what the research demonstrated regarding what the evidence showed. Part of the reason for lack of compliance was lack of education and awareness regarding evidence-based practice. The implementation educated the transport team staff regarding the SOP as to the expectation of using a standardized handoff process. The staff knew about the handoff form, but not all of the transport team members were aware of the expectation and Lutheran Hospital SOP. The members of the transport team embraced the knowledge presented during the implementation phase of the project and responded favorably as evidenced by the improved compliance of use of the standardized handoff process.

CHAPTER 7: CONCLUSION

Health Outcomes Beyond the Project Implementation Site

Not only did this improve communication between the transport team and the staff at the receiving facility leading to improved outcomes, reduced errors, and increased quality of care, but it's possible, this could potentially improve outcomes for other transport teams or other departments in the hospital. This is evidenced by the significant increase in the use of the handoff form post implementation. This project could be published in an Air Medical journal, Critical Care Transport class, or EMS journal. The results could be presented at a Critical Care Transport symposium or EMS conference to improve health outcomes beyond Lutheran Hospital. This information could be presented not only for the Lutheran Health system, but the Parkview system as well. This would have significant influence in northeast Indiana because Parkview and Lutheran own numerous facilities in the surrounding counties. Using a standardized handoff process throughout the region could improve health outcomes beyond the Lutheran Hospital transport team. Another application of this could be to utilize a similar department specific handoff process within departments within the hospital. The process used to

introduce the project to the transport team could serve as a framework for handoff education and implementation in other departments.

Summary of Health Policy Implications of the DNP Leadership Project

The Lutheran transport team had a standing operation procedure (SOP) for the handoff process. See Appendix A. This policy may serve for other transport teams or departments to follow, adopt, and adapt. The SOP may be subject to revision to improve the process and quality of care. Every area of the hospital should have a policy regarding the use of a standardized patient care handoff. Whether the patient is going from ICU to the medical floor, ER to telemetry, or being airlifted from the scene of an accident to a trauma center, a policy should be in place requiring a standardized handoff process to improve patient outcomes.

Future Directions

The future for this subject is promising. There has long been a focus on improving communication among healthcare providers, but not a lot has been done specifically for transport teams. This project may have served as a foundation to build upon for future projects and more specifically for the transport team setting. Evidence-based practice or best practice is the gold standard for care. The literature used for this project demonstrated using a standardized patient care handoff is best practice to reduce errors and improve the quality of care. Evidenced based care is the right thing to do for the patient. It will keep the provider out of legal trouble if there is proof the provider provided evidence based care. This project will be continued as an ongoing QI initiative at Lutheran. The use of the handoff form will be tracked and the intervention (presentation) may serve as a framework to educate new employees.

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*Appendix A**Lutheran Hospital Transport Team SOP*

LUTHERAN AIR/GROUND STANDARD OPERATING PROCEDURES	
SUBJECT:	CONTINUUM OF CARE
POLICY:	008
INCEPTION:	12/2018
REVISIONS:	
PAGE:	1 of 1

Purpose

To ensure high quality standard of care from onset to transfer of care; to determine the most appropriate facility for patient destination.

Policy

1. Lutheran Air (LA) and Lutheran Ground (LG) will not transfer care of patient to a facility or unit unless they provide equal or higher level of care in comparison to our own transport. This would include having to relinquish care to another flight program.
2. LA will transport all scene flight patients to the closest appropriate facility unless precluding events (weather, maintenance, etc.) make it impossible.
 - a. Traumas – Level I or II trauma facilities
 - b. Strokes – Specialized stroke care centers
 - c. AMI's – Staffed Catheterization labs
 - d. Burns – Level I or II burn centers
 - e. High-risk Obstetrics – Level II or III NICU, staffed OB unit
3. LA/LG crews will obtain a full clinical report from referring facility/EMS.
4. Transfer of care will be documented in detail in medical charting, to include time and name of personnel receiving verbal hand-off report.
5. A written hand-off report will accompany the verbal report during transfer of care. This form will be signed by both transport and receiving personnel and become a legal chart document.
6. All available patient care records (PCR) including documents and/or films will be transported bedside to bedside.

Lutheran Hospital Transport Team Handoff Form



Date:		Name:		DOB:		□ M / F □	
Diagnosis/CC:				Injury/Event Time:			
Situation/MOI:							
Stroke Symptoms: □ Yes / No □		Last seen normal:		C-STAT Positive: □ Yes / No □			
Sending Facility/EMS:				Receiving:			
Sending MD:				Receiving MD:			
<u>Time</u>	<u>HR</u>	<u>B/P</u>	<u>T</u>	<u>RR</u>	<u>SaO₂</u>	<u>ETCO₂</u>	<u>GCS</u>
							Restraints
							□ Yes □ No (If yes, please include reason and physician name if app
							Applied for Safety during transport per protocol
							Or per MD Order (Name)
IV/Access			IV/Access			IV/Access	
Site:		Size:	Site:		Size:	Site: Size:	
Allergies:							
<u>Meds Given PTA</u>	<u>Time</u>	<u>Drug</u>			<u>Dose</u>	<u>Concentration</u>	
<u>Meds Given En route</u>	<u>Time</u>	<u>Drug</u>			<u>Dose</u>	<u>Concentration</u>	
<u>Ventilator Settings</u>	<u>Mode</u>	<u>fiO₂</u>	<u>Rate</u>	<u>TV</u>	<u>PEEP</u>	<u>PS</u>	<u>PIP</u>
							<u>pPlat</u>
Pertinent Information:							
Med Crew 1: _____ Med Crew 2: _____ Crew 3: _____							
Receiving Signature				Printed Name		Date/Time	

Patient Label

Appendix C

Budget for Project

NURS 658 - Budget for Standardized Handoff DNP Project		Legend			
Created By: David J. Mansfield RN, BSN, CFRN, MBA, DNP-NAP Student		Direct Costs		\$	11,645.00
		Indirect Costs		\$	-
		In-Kind Costs		\$	7,875.00
Project Expenses					
Salaries and Wages	Description	Year 1	Year 2	Total	
DNP Project Manager (PM) - Principal Investigator -> David Mansfield (Student)	\$35.00 X Hours Worked (On Project)	\$ 875.00	\$ 7,000.00	\$ 7,875.00	
Project Training - Transport Team Members (RNs and Paramedics)	\$25.00/hr X 100 Employees X 1 Training Hour	\$ -	\$ 2,500.00	\$ 2,500.00	
Salary for IRB Members (Meeting, email, phone calls)	5 members X \$35.00/hr	\$ 875.00	\$ 3,500.00	\$ 4,375.00	
Salary for Lutheran Transport Team Manager (Meeting, email, phone calls)	\$40.00 X 1 member	\$ 120.00	\$ 360.00	\$ 480.00	
Salary for Lutheran Educators and QI Members (Meeting, email, phone calls)	\$32.00 X 2 members	\$ 256.00	\$ 384.00	\$ 640.00	
Focus Groups (Meeting, email, phone calls)	\$30.00/hr X 4 Members	\$ 600.00	\$ 1,200.00	\$ 1,800.00	
Meeting with USF DNP Project Advisor	\$60.00 X 1 USF Faculty Member	\$ 300.00	\$ 1,200.00	\$ 1,500.00	
				\$ -	
Total Salary Costs		\$ 3,026.00	\$ 16,144.00	\$ 19,170.00	
Startup Costs	Description	Year 1	Year 2	Total	
None at this Time	N/A	\$ -	\$ -	\$ -	
				\$ -	
Total Start Up Costs		\$ -	\$ -	\$ -	
Supplies and Materials	Description	Year 1	Year 2	Total	
Handouts	Printed Handouts for Presentation on Standardized Handoff	\$ -	\$ 100.00	\$ 100.00	
Fuel Cost for Meetings	Fuel Expense for Travel to and from Meetings	\$ 50.00	\$ 200.00	\$ 250.00	
				\$ -	
Total Supplies and Materials		\$ 50.00	\$ 300.00	\$ 350.00	
Capital Costs (costs >2,000)	Description	Year 1	Year 2	Total	
No Capital Expenses Anticipated at this Time	N/A	\$ -	\$ -	\$ -	
				\$ -	
				\$ -	
Total Capital Costs		\$ -	\$ -	\$ -	
Total Expenses		\$ 3,076.00	\$ 16,444.00	\$ 19,520.00	
Project Revenue	Description	Year 1	Year 2	Total	
No Direct Revenue	N/A	\$ -	\$ -	\$ -	
Cost Savings from Reduced Errors and Improved Outcomes (Estimate)	Reduced Length of Stay, Additional Required Treatment, etc.	\$ -	\$ 500,000.00	\$ 500,000.00	
				\$	-
				\$	-
Total Project Revenue		\$ -	\$ 500,000.00	\$ 500,000.00	
Project Benefit/Loss					
Total Revenue		\$ -	\$ 500,000.00	\$ 500,000.00	
Less Expenses		\$ 3,076.00	\$ 16,444.00	\$ 19,520.00	
Total Project Benefit/Loss		\$ (3,076.00)	\$ 483,556.00	\$ 480,480.00	

Appendix D

Informed Consent Form

Introduction: David Mansfield, RN, BSN is a (Certified Registered Nurse Anesthetist – CRNA) student at the University of Saint Francis enrolled in the Doctorate of Nursing Practice (DNP) program and is the primary investigator for this project. Mary Spath, RN, PhD is the DNP project advisor and is a faculty member at the University of Saint Francis. Thousands of medical errors occur every year in the United States healthcare system resulting in increased morbidity and mortality. More than 400,000 patients die annually due to preventable medical errors (Robins & Dai, 2015). A high percentage of these errors are attributed to poor communication during the patient care handoff process (Joint Commission, 2012). Best practice shows the utilization of a standardized handoff process results in less errors, improved quality of care, and increased safety (Elsevier, 2012).

Purpose of the Project: The purpose of this project is to educate Lutheran Hospital transport team staff (Air/Ground) regarding best practice for optimizing the transfer of information during patient care handoff from the Lutheran Hospital Transport Team (Air/Ground) to nursing and/or medical staff at the receiving healthcare facility. This includes the use of the Lutheran Hospital transport team handoff form.

Procedures: You will be asked to complete a questionnaire before a monthly Grand Rounds presentation on using a standardized handoff process and after. Also, the use of the Lutheran Hospital transport team handoff form (completed and uploaded into EMScharts.com) will be evaluated before and after the monthly Grand Rounds presentation. By signing this form, you hereby give consent for the University of Saint Francis and Lutheran Hospital leadership team to analyze and/or report the data collected.

Potential Risks and Benefits: There are no physical risks to being part of this project. The potential risk is the inconvenience of the time required to take the provided questionnaire and listen to the presentation on the use of a standardized handoff process. Also, some nurses or paramedics may feel anxious about completing a questionnaire. The benefit is learning about how the use of a standardized handoff process is best practice (evidence-based) and will potentially increase your patient's safety, decrease the likelihood of error, and improve your patient's outcome.

Protocols used to Safeguard the Identity of the Participants: You will not be directly or indirectly identifiable during this project as your name will remain anonymous. Individual information collected from the questionnaire will be kept with utmost confidentiality. The overall responses from the questionnaire will be shared with the Lutheran Hospital transport team leadership and the University of Saint Francis faculty, but no names or identifiable information will be associated with the questionnaire. In addition, your name will not be associated with the information collected regarding the use of the Lutheran Hospital transport team handoff form.

Voluntary Participation: Your participation is completely voluntary. You may elect to withdraw your permission to use the responses from the questionnaire at any time. A signed copy of this consent will be provided for you.

Contact Information: If you have questions regarding this Quality Improvement Project, please contact me at:

David J. Mansfield (Primary Investigator)

8716 Legends Parkway

Fort Wayne, IN 46835

mansfielddj@cougars.sf.edu

I have received an explanation of this project and agree to be a participant. I fully understand that my participation in this project is completely voluntary.

Your Printed Name

Your Signature

Date

Witness Printed Name

Witness Signature

Date

*Appendix E**Survey***Patient Care Handoff for Lutheran Hospital Transport Team (Air/Ground)****Pre-Intervention Survey**

Directions: Please answer the following questions pertaining to your use of the Lutheran Hospital Patient Care Handoff Process/Form

1. How long have you been working as a nurse or paramedic on the Lutheran Hospital Transport Team (Air/Ground)? _____ (Years)
2. On average, how many hours per week do you spend providing care as a Lutheran Hospital Transport Team nurse or paramedic? _____ (Hours)
3. Over the past two weeks, how many times did you use the standardized handoff process including the Lutheran Hospital handoff form when giving report to the receiving facility _____.
4. Over the past two weeks, how many times did you use a standardized handoff process when giving report for a Lutheran Hospital Transport Team (Air/Ground) patient? _____.
5. I am satisfied with the current transfer of care process when giving report for a Lutheran Hospital Transport Team patient: Yes_____ No_____
6. The current handoff process is appropriate: Yes_____ No_____
7. The current handoff process lends itself to mistakes: Yes___ No___

8. The current handoff process is comprehensive: Yes_____ No_____
9. The current handoff process provides an effective way of transferring important information: Yes_____ No_____
10. Positive aspects of current handoff process:

_____.
11. Suggestions for improvement/barriers to the current handoff process:_____

12. I am aware that the use of a standardized patient care handoff form for the Lutheran Hospital team is recommended: Strongly agree _____ Agree _____ Neutral _____ Disagree _____ Strongly disagree_____
13. Rate your current awareness and knowledge of the benefits of using a standardized patient care handoff/handoff form when delivering a patient to a receiving facility: Poor _____ Fair _____ Good _____ Very Good _____ Excellent_____
14. Research demonstrates an increase in safety and quality of care when a standardized patient care handoff process/handoff form is utilized: Strongly Disagree_____ Somewhat Disagree_____ Neither Agree Nor Disagree_____ Somewhat Agree _____ Strongly Agree _____
15. Best practice for patient care handoff includes a standardized handoff process/form: Strongly Disagree_____ Somewhat Disagree_____ Neither Agree Nor Disagree_____ Somewhat Agree _____ Strongly Agree _____

16. Rate your current understanding of best practice regarding patient care handoff process/use of handoff form: Poor ____ Fair ____ Good ____ Very Good ____ Excellent ____
17. Failure to use a standardized patient care handoff process/handoff form increases the chance of error and decrease in quality of care: Strongly Disagree ____ Somewhat Disagree ____ Neither Agree Nor Disagree ____ Somewhat Agree ____ Strongly Agree ____

Version 2.0 September 20, 2019

Patient Care Handoff for Lutheran Hospital Transport Team (Air/Ground)

Post-Intervention Survey

Directions: Please answer the following questions pertaining to your use of the Lutheran Hospital Patient Care Handoff Process/Form

1. How long have you been working as a nurse or paramedic on the Lutheran Hospital Transport Team (Air/Ground)? ____ (Years)
2. On average, how many hours per week do you spend providing care as a Lutheran Hospital Transport Team nurse or paramedic? ____ (Hours)
3. Over the past two weeks, how many times did you use the standardized handoff process including the Lutheran Hospital handoff form when giving report to the receiving facility ____.
4. Over the past two weeks, how many times did you use a standardized handoff process when giving report for a Lutheran Hospital Transport Team (Air/Ground) patient? _____.

5. I am satisfied with the current transfer of care process when giving report for a Lutheran Hospital Transport Team patient: Yes_____ No_____
6. The current handoff process is appropriate: Yes_____ No_____
7. The current handoff process lends itself to mistakes: Yes_____ No_____
8. The current handoff process is comprehensive: Yes_____ No_____
9. The current handoff process provides an effective way of transferring important information: Yes_____ No_____
10. Positive aspects of current handoff process:

_____.
11. Suggestions for improvement/barriers to the current handoff process:_____

12. I am aware that the use of a standardized patient care handoff form for the Lutheran Hospital team is recommended: Strongly agree _____ Agree _____ Neutral _____ Disagree _____ Strongly disagree_____
13. Rate your current awareness and knowledge of the benefits of using a standardized patient care handoff/handoff form when delivering a patient to a receiving facility: Poor _____ Fair _____ Good _____ Very Good _____ Excellent_____

14. Research demonstrates an increase in safety and quality of care when a standardized patient care handoff process/handoff form is utilized: Strongly Disagree____ Somewhat Disagree____ Neither Agree Nor Disagree____ Somewhat Agree ____ Strongly Agree ____
15. Best practice for patient care handoff includes a standardized handoff process/form: Strongly Disagree____ Somewhat Disagree____ Neither Agree Nor Disagree____ Somewhat Agree ____ Strongly Agree ____
16. Rate your current understanding of best practice regarding patient care handoff process/use of handoff form: Poor ____ Fair ____ Good ____ Very Good ____ Excellent____
17. Failure to use a standardized patient care handoff process/handoff form increases the chance of error and decrease in quality of care: Strongly Disagree____ Somewhat Disagree____ Neither Agree Nor Disagree____ Somewhat Agree ____ Strongly Agree ____

Version 2.0 September 20, 2019

*APPENDIX F**Permission to use Survey*

Suzanne Wright <smwright@vcu.edu>

Fri 7/12/2019 11:34 AM

Mansfield, David J ✓



Good morning, David.

I would be happy to help in any way I can. Feel free to use the surveys in any way that will advance patient safety.

Since doctoral projects and their structures vary from program to program, it is difficult to provide much guidance.

Please keep me posted of your progress. I need to spend more time visiting this important part of our practice.

Best wishes as you move ahead.

Have a great weekend,

Suzanne M. Wright, PhD, CRNA

Professor and Chair

Department of Nurse Anesthesia

College of Health Professions

Virginia Commonwealth University

[PO Box 980226](#)

[Richmond, VA 23298](#)

[804 828 9808](#)

"Our Passion is Making Patient Safety Real"

...

*Appendix G**USF IRB Approval*

**University of Saint Francis
Institutional Review Board
Human Subjects Review Committee/ACUC/IBC
Institutional Review Board Approval Form**

Protocol Number: 1569452-HSFC

Review by (underline one): HSRC ACUC IBC

Date Reviewed: 10/09/2019

Principal Investigator: David Mansfield

Faculty Advisor: Dr. Mary Spath

Protocol Title: Improving Utilization of the Handoff Process for the Ground/Air Transport Team

Study Site(s): Lutheran Hospital

Items submitted for review:

- ☐ CITI Certification
- ☐ Initial protocol
- ☐ Abstract
- ☐ Informed Consent Form (if applicable)
- ☐ Approval letter from outside institution
- ☐ Other – explain: IRB approval from Lutheran Hospital

Type of Review:

- ☐ Full Review
- ☐ Expedited Review
- ☐ Exempt Review

Approval:

- ☐ Approval granted on 10/09/2019
- ☐ Approval granted on _____ for a period of one year.
- ☐ Conditional approval* granted on _____ for a period of one year.
- ☐ Not approved*
- ☐ Other

*Comments: _____

The committee performing this review is duly constituted and operates in accordance and compliance with local and federal regulations and guidelines.

Stephanie Oetting

Printed Name (Chair or designee)

Stephanie Oetting

Signature

10/14/2019

Date

Appendix H

Initial Lutheran Hospital IRB Approval

3



August 22, 2019

David Mansfield, RN
University of Saint Francis
2701 Spring Street
Fort Wayne, IN 4608

Re: LHN File: 19-545

Study Name: Patient Care Handoff for Lutheran Hospital Transport (Air/Ground)

Submission: Protocol, Pre-Intervention and Post-Intervention Survey,
Lutheran Air/Ground Handoff Report dated 04/17 Revision 09/17,
Informed Consent waiver and HIPAA Authorization waiver

Dear Mr. Mansfield:

Enclosed is the Approval Form of the Lutheran Hospital Institutional Review Board (IRB) for the above referenced study.

The experience of your ongoing clinical study is required to be reported to the Institutional Review Board on a yearly basis in written format two (2) months prior to expiration (your presence is not necessary).

If there are any serious adverse events that occur in your study, please notify the Chairman of the Institutional Review Board within 10 days of their occurrence.

Should you have any questions or require any additional information, please do not hesitate to contact me at 260-435-7616.

Sincerely,

A handwritten signature in cursive script, reading "Carla J. Scherer".

Carla J. Scherer,
LH IRB Coordinator

enclosure

7916 W. JEFFERSON BLVD., FORT WAYNE, IN 46804

P: 260 432-2297 | T: 800 927-2297 | W: LUTHERANHEALTHPHYSICIANS.COM

Appendix I

Lutheran Hospital Updated IRB Approval after Survey Changes

4



October 17, 2019

David Mansfield, RN
University of Saint Francis
2701 Spring Street
Fort Wayne, IN 4608

Re: LHN File: 19-545

Study Name: Patient Care Handoff for Lutheran Hospital Transport (Air/Ground)

Submission: Pre-Intervention and Post-Intervention Survey Amendment 2.0

Dear Mr. Mansfield:

Enclosed is the Approval Form of the Lutheran Hospital Institutional Review Board (IRB) for the above referenced study.

The experience of your ongoing clinical study is required to be reported to the Institutional Review Board on a yearly basis in written format two (2) months prior to expiration (your presence is not necessary).

If there are any serious adverse events that occur in your study, please notify the Chairman of the Institutional Review Board within 10 days of their occurrence.

Should you have any questions or require any additional information, please do not hesitate to contact me at 260-435-7616.

Sincerely,

A handwritten signature in cursive script that reads "Carla J. Scherer".

Carla J. Scherer,
LH IRB Coordinator

enclosure

Lutheran Hospital Institutional Review Board (IRB) Approval Form	
IRB Name:	Lutheran Hospital Institutional Review Board
IRB Address:	7950 W. Jefferson Blvd. Fort Wayne, IN 46804
Principal Investigator:	David Mansfield, RN
Study Site(s):	Lutheran Hospital 7950 W. Jefferson Boulevard Fort Wayne, IN 46804
Protocol Title and Number:	Patient Care Handoff for Lutheran Hospital Transport (Air/Ground)

Date Reviewed By IRB: 10/16/19

The items below have been submitted for review (check all that apply):

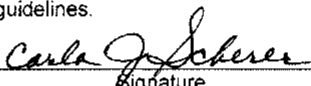
- ☒ Protocol Version 1.0 dated 07/31/19
☐ Protocol Amendment, Version: Dated _____
☐ Investigator Brochure: Dated _____
☐ Informed Consent and Research Authorization Form _____
☐ IRB stamp or notation with approval date of _____
☐ HIPAA Authorization _____
☐ IRB stamp or notation with approval date of _____
☐ No clinical trial personnel, who are IRB members, deliberated or voted on this protocol.
 _____ abstained from voting during the approval process and exited the meeting.
☒ Subject Advertisements, Recruiting Materials, and Written Information – specify:
 Pre-Intervention and Post-Intervention Survey Amendment Version 2.0 dated 09/20/19
 IRB stamp or notation with approval date of 10/16/19
☐ Other documents – specify: _____

Approval:

- ☐ Approval granted on _____
☒ Approval granted on 10/16/19 from 10/16/19 to 08/21/20
☐ Conditional approval* granted on _____
☐ Not approved*

*Comments: There were no changes required to the protocol with this survey amendment.

The IRB performing this review is duly constituted and operates in accordance and compliance with local and federal regulations and ICH guidelines.

Carla J. Scherer		10/17/19
Printed Name	Signature	Date
(IRB Chair or designee)		of Signature

*Appendix J**CITI Training*

Completion Date 04-Aug-2019
Expiration Date 03-Aug-2022
Record ID 32657653

This is to certify that:

David Mansfield

Has completed the following CITI Program course:

Social & Behavioral Research - Basic/Refresher (Curriculum Group)
Social & Behavioral Research (Course Learner Group)
1 - Basic Course (Stage)

Under requirements set by:

University of Saint Francis



Completion Date 03-Aug-2019
Expiration Date 02-Aug-2022
Record ID 32657657

This is to certify that:

David Mansfield

Has completed the following CITI Program course:

Public Health Research (Curriculum Group)
Public Health Research (Course Learner Group)
1 - Basic (Stage)

Under requirements set by:

University of Saint Francis





Completion Date 03-Aug-2019
Expiration Date 02-Aug-2022
Record ID 32657656

This is to certify that:

David Mansfield

Has completed the following CITI Program course:

GCP – Social and Behavioral Research Best Practices for Clinical Research

(Curriculum Group)

GCP – Social and Behavioral Research Best Practices for Clinical Research

(Course Learner Group)

1 - Basic Course

(Stage)

Under requirements set by:



Completion Date 03-Aug-2019
Expiration Date 02-Aug-2022
Record ID 32657655

This is to certify that:

David Mansfield

Has completed the following CITI Program course:

Social and Behavioral Responsible Conduct of Research

(Curriculum Group)

Social and Behavioral Responsible Conduct of Research

(Course Learner Group)

1 - RCR

(Stage)

Under requirements set by:

University of Saint Francis





Completion Date 03-Aug-2019
Expiration Date N/A
Record ID 32657654

This is to certify that:

David Mansfield

Has completed the following CITI Program course:

Information Privacy Security (IPS) (Curriculum Group)
Researchers (Course Learner Group)
1 - Basic Course (Stage)

Under requirements set by:

University of Saint Francis



Project Timeline

		2019			TimeLine for DNP Project				2020							
Deliverable	Responsible for Deliverable	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August
Meet with Dr. Spath	Student & Dr. Spath	6-Jun														
Meet with Dr. Spath	Student & Dr. Spath	13-Jun														
SWOT Analysis	David Mansfield (Student)	20-Jun														
Copy of IRB from Lutheran Hospital	David Mansfield (Student)	20-Jun														
Obtain Permission to Adapt Survey	David Mansfield (Student)		1-Jul													
Force Field Analysis Template	David Mansfield (Student)		6-Jul													
Meet with Transport Manager	Student & Manager		11-Jul													
Meet with Dr. Spath	Student & Dr. Spath		11-Jul													
Policy Development	David Mansfield (Student)		20-Jul													
Meet with Dr. Spath	Student & Dr. Spath		25-Jul													
Action Plan for DNP	David Mansfield (Student)			4-Aug												
Meet with Transport Manager	Student & Manager			7-Aug												
Meet with Transport Educator	Student & Educator			7-Aug												
Meet with Dr. Spath	Student & Dr. Spath			8-Aug												
End of Term - Team Agreement	David Mansfield (Student)			9-Aug												
End of Term - DNP Report	David Mansfield (Student)			9-Aug												
Time Line for DNP	David Mansfield (Student)			10-Aug												
First Draft of Consent Form	David Mansfield (Student)			11-Aug												
CITI Training	David Mansfield (Student)			11-Aug												
Budget for DNP	David Mansfield (Student)			17-Aug												
Lutheran IRB Meeting	Student & IRB Team			21-Aug												
Project Plan, Methods, Outcomes	David Mansfield (Student)			23-Aug												
Chart Audit - Preintervention	David Mansfield (Student)			30-Aug												
Meet with Dr. Spath	David Mansfield (Student)				10-Sep											
Meet with Focus Group	Student & Focus Group				12-Sep											
Meet with Transport Manager	David Mansfield (Student)				15-Sep											
Meet with Dr. Spath	David Mansfield (Student)					15-Oct										
Meet with Focus Group	Student & Focus Group						13-Nov									
Meet with Dr. Spath	David Mansfield (Student)						13-Nov									
Dissemination Plan	David Mansfield (Student)						13-Nov									
Meet with Transport Manager	David Mansfield (Student)						15-Nov									
Meet with Transport Educator	David Mansfield (Student)						16-Nov									
Meet with Dr. Spath	David Mansfield (Student)							15-Dec								
Present to Transport Staff	Student and Transport Team								7-Jan							
Survey - Preintervention	David Mansfield (Student)								7-Jan							
Survey - Postintervention	David Mansfield (Student)								7-Jan							

Appendix L

Permission to Conduct Audit

Secondary Data Request Form

Project Title: Improving Handoff Process
 Project Lead: David Mansfield
 Position/Title: RN Email: mansfieldd@rogers-st.edu Date: 8-15-19
CRNA/Student

Purposes of the project/study:

1. The data is being requested for: (summarize the purpose of the project in 1-2 paragraphs)

Gather data regarding the use of the handoff form at Lutheran Hospital (Transport Team)

2. Do you plan to make contact with enrollees as part of the study? Yes ☒ No ☐

3. How does this project benefit the organization that is providing the data? Helps determine compliance

4. How will the results of the project be disseminated?

Discussed at Lutheran Hospital Leadership Team/USF Faculty

Requested Data Services

5. Is the requested data reported at any level (individual patient data, summary reports, etc.) in this organization? If so, explain the source and reports and key stakeholders for the reporting.

Will be reported to Lutheran Leadership team/USF Faculty. No

6. What is the desired timeframe you have for receiving the data?

From 8-15-19 to 8-31-19

pt info will be identified

Specifics of the data requested

7. Date of service (DOS) range of data: From: 1/1/19 to Present (200 charts)

8. Please estimate the number of charts patients for which you are requesting data: 200

9. How individually identifiable is the data you require according to HIPAA regulations?

- ☒ De-Identified
☒ Limited Data Set
☐ Personal Identifiers

What identifiers are included in your data request? Room or flight number, but not names, DOB, or other ident. info

10. What variables/fields are you requesting? (List all variables and variable characteristics using the provided data dictionary format with examples. Use an attachment if necessary.)

1) Is Handoff completed? If so, was it uploaded?
2) What info was missing

Variable Name	Full Variable Name	Description	Data Source	Variable Type	Possible Values	Coding Instructions
<i>id</i>	<i>Identification number</i>	<i>DW Number</i>	<i>EMR</i>	<i>numeric</i>	<i>1,2,...,100</i>	<i>patient identification number</i>
<i>age</i>	<i>Age</i>	<i>Age at time of hospitalization</i>	<i>EMR</i>	<i>numeric</i>	<i>18, 19,...,90,>90</i>	<i>in years</i>
<i>gender</i>	<i>Gender</i>	<i>Gender</i>	<i>EMR</i>	<i>numeric</i>	<i>female, male</i>	<i>1=female, 2=male</i>

11. Are you requesting repeated measurements of data? Yes ☒ No ☐

If yes, please describe: Will conduct another audit of 200 charts & presentation on handoffs.

14. What type of data are you requesting?

- ☐ Text Delimited
☐ Text Fixed Length
☐ Excel

☒ Other: Was the handoff completed/uploaded.

15. For what software application are you requesting the data? Excel

Zach Stoppenhagen
 Printed Name

8/16/19
 Date


 Signature

8-16-19
 Date

Appendix M

Pre-Implementation Chart Audit

Date	Handoff Form Uploaded to EMR (EMS Charts)	Hx Documented?	Vitals Documented?	Meds PTA Documented?	Meds Enroute Documented?
1/1/19	Yes	Yes	No	Yes	No
1/1/19	Yes	Yes	Yes	Yes	Yes
1/1/19	Maternal RUN	N/A	N/A	N/A	N/A
1/1/19	No	N/A	N/A	N/A	N/A
1/1/19	No	N/A	N/A	N/A	N/A
1/1/19	No	N/A	N/A	N/A	N/A
1/2/19	No	N/A	N/A	N/A	N/A
1/2/19	No	N/A	N/A	N/A	N/A
1/2/19	Yes	No	Yes	No	No
1/2/19	Rehab back to Rehab (CT Scan)	N/A	N/A	N/A	N/A
1/2/19	MRI RUN	N/A	N/A	N/A	N/A
1/2/19	Vibra to Nursing Home	N/A	N/A	N/A	N/A
1/2/19	No	N/A	N/A	N/A	N/A
1/2/19	Patient Taken to Residence	N/A	N/A	N/A	N/A
1/2/19	No	N/A	N/A	N/A	N/A
1/2/19	No	N/A	N/A	N/A	N/A
1/2/19	No	N/A	N/A	N/A	N/A
1/2/19	Pt taken to Nursing Home	N/A	N/A	N/A	N/A
1/3/19	No	N/A	N/A	N/A	N/A
1/3/19	No	N/A	N/A	N/A	N/A
1/3/19	NICU RUN	N/A	N/A	N/A	N/A
1/3/19	REHAB RUN - Back to Rehab	N/A	N/A	N/A	N/A
1/3/19	Yes	Yes	Yes	Yes	Yes
1/3/19	Pt taken to Hospice	N/A	N/A	N/A	N/A
1/3/19	Maternal RUN	N/A	N/A	N/A	N/A

Transport Mode/Type
G = Ground Transport (Mobile ICU)
F = Flight (Air Ambulance)
N = NICU (Neonatal)
M = Maternal (Ground Transport)
S = Ground Transport from Statewood ER
Audited 170 Ground Charts and 40 Flight Charts (210 Total)
58 out of 170 ground charts were MRI, Maternal, NICU, and Nursing Home Runs
112 runs for the Handoff audit
22 out 112 charts had a handoff form uploaded to EMR = 20%
Flight Charts had 2/40 = 5%

Post Implementation Survey

	Date	Handoff Form Uploaded to EMR (EMS Charts)	Hx Documented?	Vitals Documented?	Meds PTA Documented?	Meds Enroute Documented?	
		GROUND					Transport Mode/Type
G20-0227	1/21/20	Yes	Yes	Yes	Yes	Yes	G = Ground Transport (Mobile ICU)
G20-0228	1/22/20	Yes	Yes	Yes	Yes	Yes	F = Flight (Air Ambulance)
G20-0229	1/22/20	Yes	Yes	Yes	Yes	No	N = NICU (Neonatal)
G20-0230	1/22/20	No	N/A	N/A	N/A	N/A	M = Maternal (Ground Transport)
G20-0235	1/22/20	Yes	Yes	Yes	Yes	Yes	S = Ground Transport from Statewood ER
G20-0237	1/22/20	Yes	Yes	Yes	Yes	Yes	
G20-0238	1/22/20	Yes	Yes	Yes	Yes	Yes	
G20-0239	1/22/20	Yes	Yes	Yes	Yes	No	
G20-0240	1/22/20	Yes	Yes	Yes	Yes	No	
G20-0246	1/23/20	Yes	Yes	Yes	No	No	
G20-0254	1/23/20	Yes	Yes	Yes	Yes	No	
G20-0255	1/23/20	Yes	Yes	Yes	Yes	Yes	
G20-0256	1/24/20	Yes	Yes	Yes	Yes	Yes	
G20-0257	1/24/20	Yes	Yes	Yes	Yes	Yes	
S20-0264	1/24/20	Yes	Yes	Yes	Yes	Yes	
G20-0266	1/24/20	Yes	Yes	Yes	Yes	Yes	
G20-0268	1/24/20	Yes	Yes	Yes	Yes	Yes	
S20-0270	1/24/20	Yes	Yes	Yes	Yes	Yes	
S20-0276	1/25/20	Yes	Yes	Yes	Yes	No	
G20-0276	1/25/20	Yes	Yes	Yes	Yes	No	
G20-0281	1/25/20	Yes	Yes	Yes	Yes	Yes	
S20-0283	1/25/20	Yes	Yes	Yes	Yes	No	
G20-0285	1/25/20	Yes		Yes	Yes	Yes	Yes
G20-0291	1/26/20	Yes		Yes	Yes	Yes	Yes
G20-0293	1/26/20	Yes		Yes	No	Yes	Yes
G20-0294	1/26/20	Yes		Yes	Yes	No	No
G20-0295	1/26/20	Yes		Yes	Yes	Yes	Yes
G20-0305	1/27/20	Yes		Yes	Yes	Yes	No
S20-0316	1/28/20	Yes		Yes	Yes	Yes	Yes
G20-0318	1/28/20	Yes		Yes	Yes	No	No
S20-0326	1/28/20	Yes		Yes	Yes	Yes	Yes
G20-0329	1/28/20	Yes		Yes	Yes	Yes	Yes
S20-0330	1/28/20	Yes		Yes	Yes	Yes	No
G20-0242	1/29/20	No		N/A	N/A	N/A	N/A
G20-0346	1/30/20	Yes		Yes	Yes	Yes	Yes
G20-0347	1/30/20	Yes		Yes	Yes	Yes	Yes
G20-0362	1/30/20	Yes		Yes	Yes	Yes	Yes
G20-0363	1/31/20	Yes		Yes	Yes	Yes	Yes
G20-0365	1/31/20	Yes		Yes	Yes	Yes	No
S20-0369	1/31/20	Yes		Yes	Yes	Yes	No
S20-0374	2/1/20	Yes		Yes	Yes	Yes	Yes
G20-0378	2/1/20	Yes		Yes	Yes	Yes	Yes
G20-0381	2/1/20	Yes		Yes	Yes	Yes	Yes
G20-0385	2/1/20	Yes		Yes	Yes	Yes	Yes
G20-0389	2/2/20	Yes		Yes	Yes	Yes	Yes
G20-0412	2/5/20	Yes		Yes	Yes	Yes	Yes
G20-0419	2/5/20	Yes		Yes	Yes	No	No
G20-0423	2/6/20	No		N/A	N/A	N/A	N/A
G20-0426	2/6/20	Yes		Yes	No	Yes	No
G20-0436	2/6/20	Yes		Yes	Yes	Yes	No
G20-0448	2/7/20	Yes		Yes	Yes	Yes	Yes
G20-0455	2/8/20	Yes		Yes	Yes	Yes	Yes
G20-0468	2/8/20	Yes		Yes	Yes	Yes	Yes
G20-0470	2/9/20	Yes		Yes	Yes	Yes	Yes
G20-0480	2/9/20	Yes		Yes	Yes	Yes	Yes
G20-0484	2/10/20	Yes		Yes	No	Yes	No
G20-0489	2/10/20	Yes		Yes	Yes	No	No
G20-0495	2/11/20	Yes		Yes	Yes	Yes	Yes
G20-0508	2/12/20	Yes		Yes	Yes	Yes	Yes
G20-0521	2/12/20	Yes		Yes	Yes	Yes	Yes
G20-0523	2/13/20	Yes		Yes	No	No	No
G20-0523	2/13/20	Yes		Yes	Yes	No	No
G20-0535	2/14/20	Yes		Yes	Yes	Yes	Yes
G20-0544	2/15/20	Yes		Yes	Yes	Yes	Yes
G20-0550	2/15/20	Yes		Yes	Yes	Yes	Yes
G20-0553	2/16/20	Yes		Yes	Yes	Yes	Yes
G20-0557	2/16/20	Yes		Yes	Yes	Yes	Yes
S20-0566	2/17/20	Yes		Yes	Yes	Yes	Yes
G20-0571	2/17/20	Yes		Yes	Yes	Yes	No
S20-0575	2/18/20	Yes		Yes	Yes	Yes	Yes
G20-0590	2/18/20	Yes		Yes	Yes	Yes	No

Appendix O

Learning Objectives for Participants

At the conclusion of the presentation, the participants will be able to describe best practice for a patient care handoff.

At the conclusion of the presentation, the participants will be able to explain expectations of the Joint Commission regarding utilization of a standardized patient care handoff process.

At the conclusion of the presentation, the participants will be able to recognize the benefits of using a standardized patient care handoff process.

At the conclusion of the presentation, the participants will be able to state what the research demonstrates regarding the incidence of error, patient safety, and quality of care.

At the conclusion of the presentation, the participants will outline the importance of consistently using a standardized patient care handoff process.

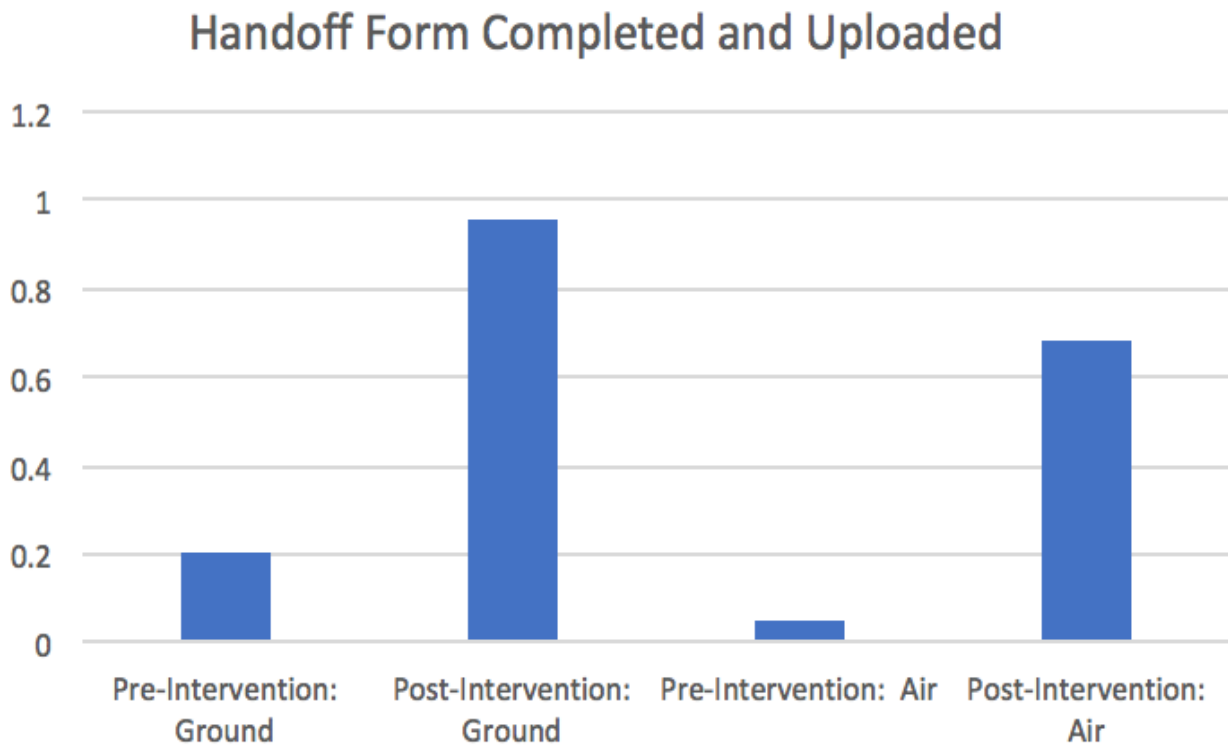
*Appendix P**Results of Pre-Intervention Survey*

	 Awareness	 Research	 BestPratice	 Understanding	
1	Good	Somewhat Agree	Strongly Agree	Good	
2	Good	Neither Agree Nor Disagree	Neither Agree Nor Disagree	Good	
3	Fair	Neither Agree Nor Disagree	Neither Agree Nor Disagree	Fair	
4	Good	Somewhat Agree	Somewhat Agree	Fair	
5	Very Good	Somewhat Agree	Somewhat Agree	Fair	
6	Fair	Neither Agree Nor Disagree	Neither Agree Nor Disagree	Poor	
7	Fair	Somewhat Agree	Somewhat Agree	Good	
8	Poor	Neither Agree Nor Disagree	Somewhat Agree	Fair	
9	Good	Neither Agree Nor Disagree	Somewhat Disagree	Good	
10	Fair	Somewhat Agree	Somewhat Disagree	Fair	
11	Good	Somewhat Agree	Neither Agree Nor Disagree	Good	
12	Good	Neither Agree Nor Disagree	Somewhat Agree	Poor	
13	Fair	Somewhat Disagree	Neither Agree Nor Disagree	Fair	
14	Good	Somewhat Agree	Neither Agree Nor Disagree	Fair	
15	Poor	Neither Agree Nor Disagree	Neither Agree Nor Disagree	Fair	
16	Very Good	Neither Agree Nor Disagree	Somewhat Agree	Good	
17	Fair	Somewhat Disagree	Somewhat Agree	Fair	
18	Fair	Neither Agree Nor Disagree	Somewhat Agree	Good	
19	Fair	Neither Agree Nor Disagree	Somewhat Agree	Fair	
20	Good	Neither Agree Nor Disagree	Somewhat Agree	Poor	
21					

Appendix Q

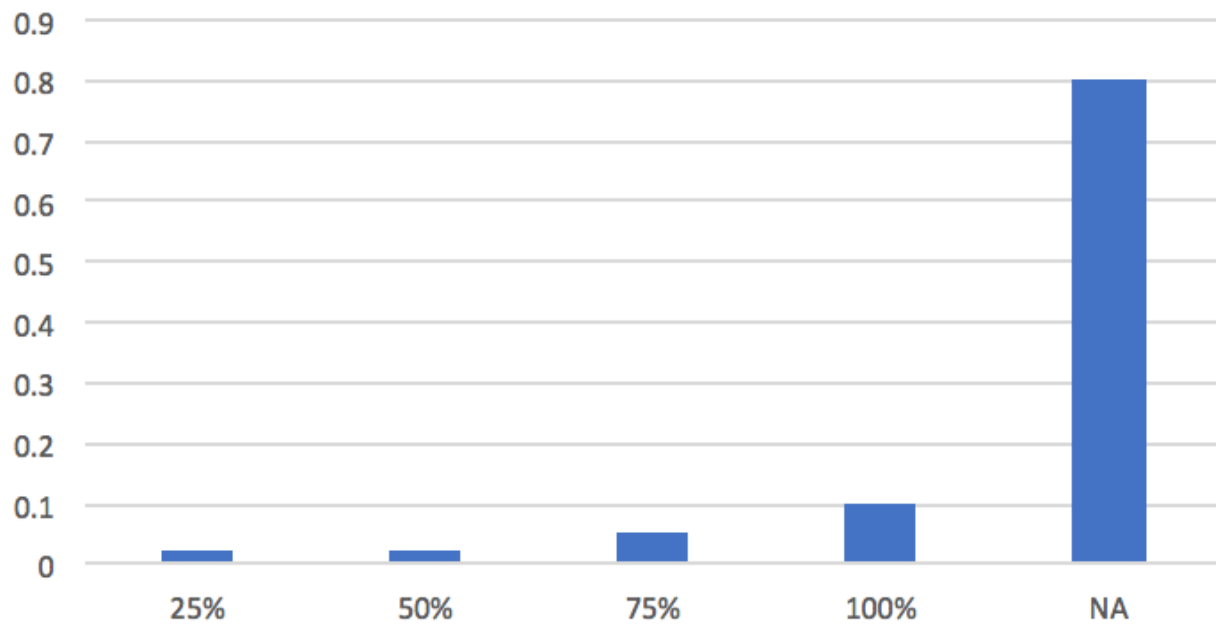
Results of Post-Intervention Survey

	 Awareness	 Research	 BestPractice	 Understanding
1	Excellent	Somewhat Agree	Strongly Agree	Very Good
2	Very Good	Somewhat Agree	Strongly Agree	Excellent
3	Very Good	Strongly Agree	Strongly Agree	Very Good
4	Excellent	Neither Agree Nor Disagree	Strongly Agree	Very Good
5	Excellent	Strongly Agree	Strongly Agree	Excellent
6	Very Good	Strongly Agree	Neither Agree Nor Disagree	Excellent
7	Very Good	Strongly Agree	Somewhat Agree	Excellent
8	Good	Somewhat Agree	Strongly Agree	Excellent
9	Excellent	Somewhat Agree	Strongly Agree	Excellent
10	Excellent	Strongly Agree	Strongly Agree	Excellent
11	Very Good	Strongly Agree	Strongly Agree	Very Good
12	Excellent	Strongly Agree	Strongly Agree	Fair
13	Excellent	Strongly Agree	Somewhat Agree	Good
14	Good	Somewhat Agree	Neither Agree Nor Disagree	Excellent
15	Very Good	Somewhat Agree	Neither Agree Nor Disagree	Excellent
16	Excellent	Somewhat Agree	Somewhat Agree	Very Good
17	Excellent	Somewhat Agree	Strongly Agree	Very Good
18	Very Good	Strongly Agree	Strongly Agree	Excellent
19				

*Appendix R**Chart Audit: Pre- and Post Intervention for Air and Ground*

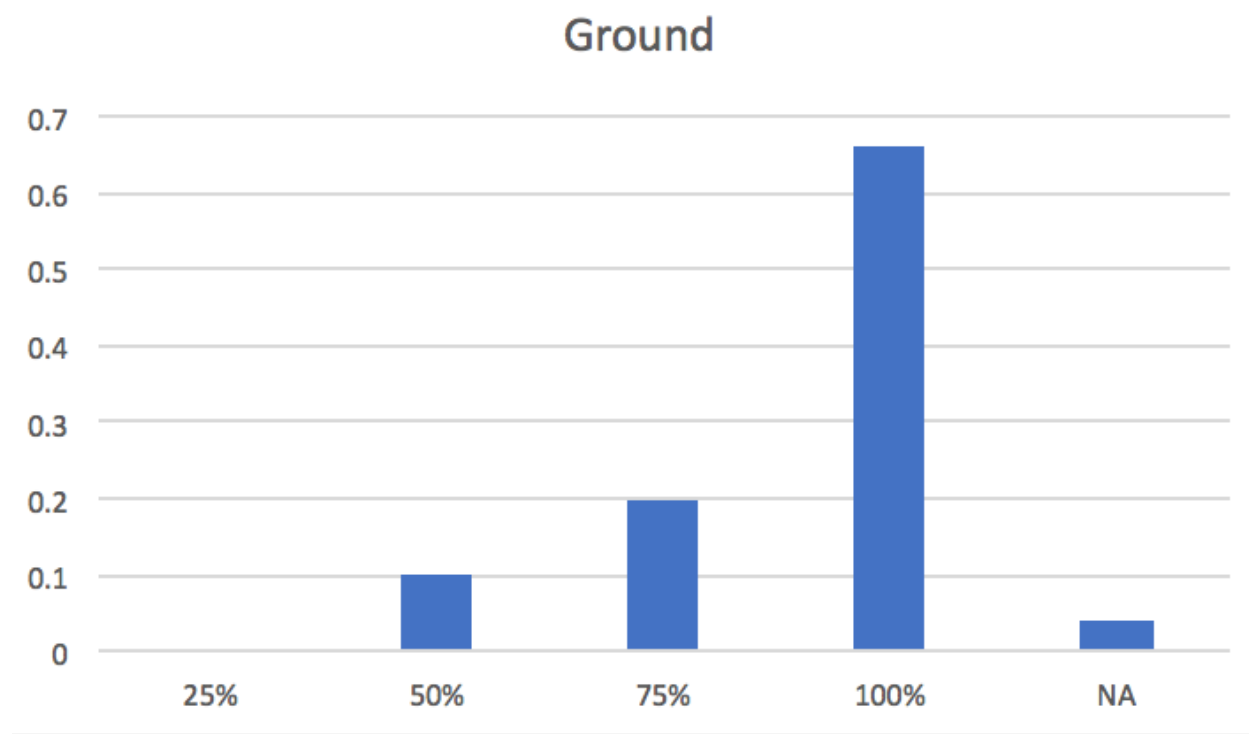
Appendix S

Degree of Completion: Pre-Intervention

Ground

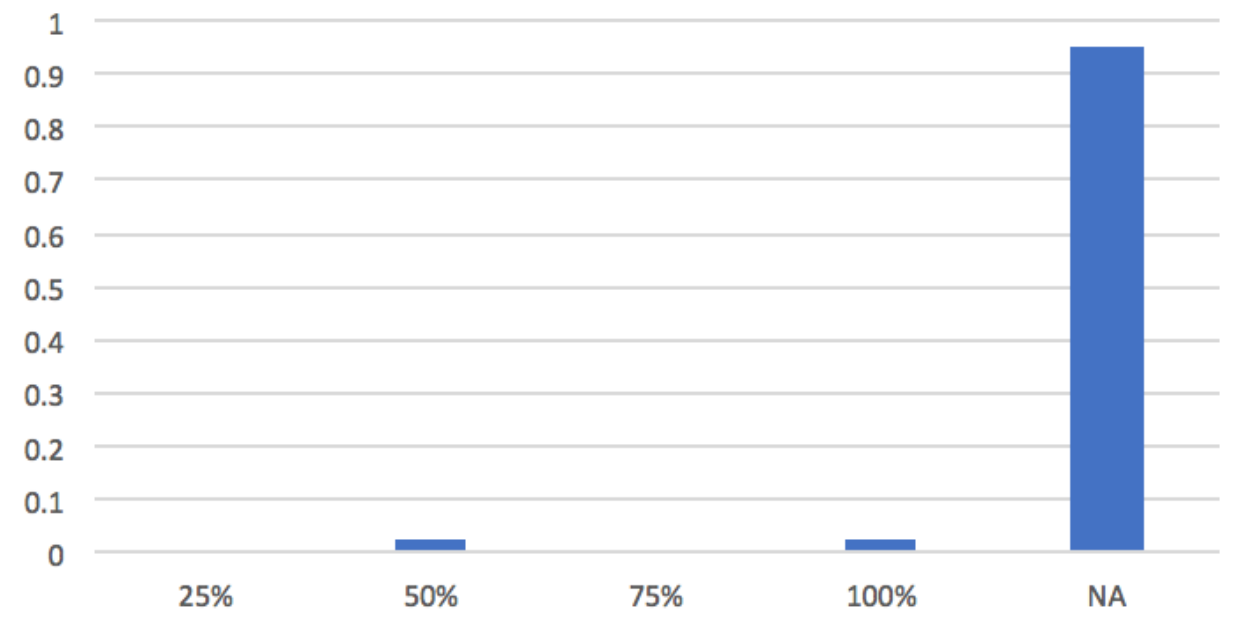
Appendix T

Degree of Completion: Post-Intervention



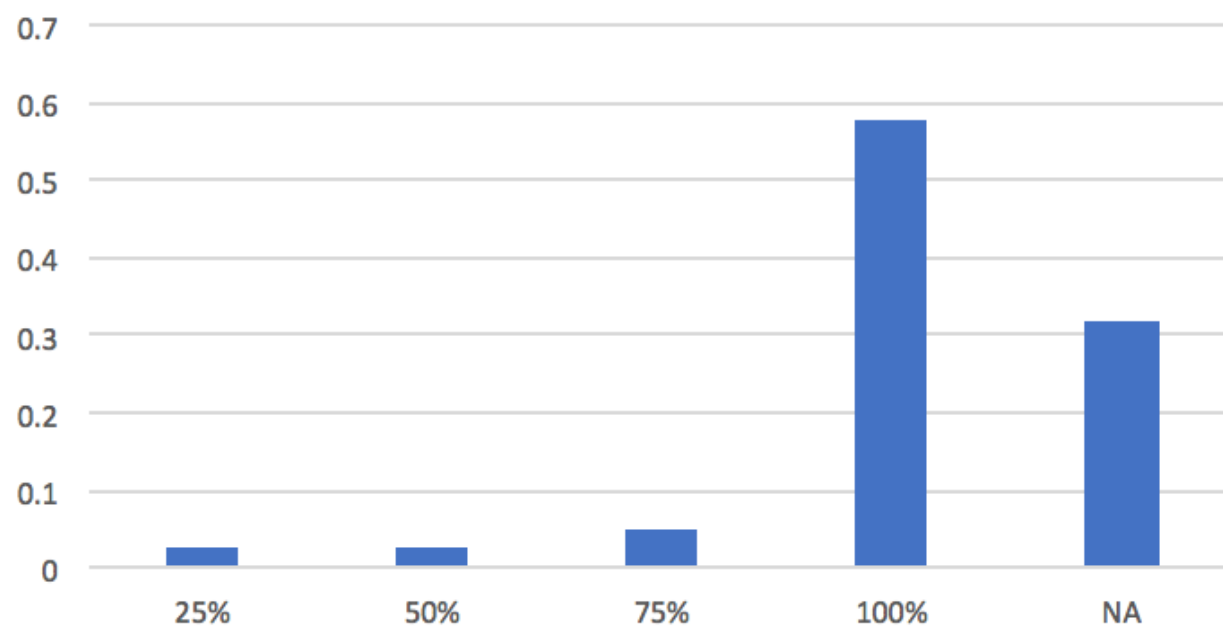
Appendix U

Degree of Completion: Pre-Intervention

Air

Appendix V

Degree of Completion: Post-Intervention

Air

*Appendix W**Frequencies**Top Table = Years of Service**Bottom Table = Hours Worked per Week***Frequency Table****Pre-Intervention**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	4	20.0	20.0	20.0
	3.00	7	35.0	35.0	55.0
	4.00	3	15.0	15.0	70.0
	6.00	1	5.0	5.0	75.0
	10.00	2	10.0	10.0	85.0
	14.00	1	5.0	5.0	90.0
	15.00	1	5.0	5.0	95.0
	16.00	1	5.0	5.0	100.0
	Total	20	100.0	100.0	

Pre-Intervention

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	12.00	5	25.0	25.0	25.0
	20.00	1	5.0	5.0	30.0
	24.00	1	5.0	5.0	35.0
	36.00	11	55.0	55.0	90.0
	40.00	2	10.0	10.0	100.0
	Total	20	100.0	100.0	

Appendix X

Left Column = Years of Service

Right Column = Hours Worked Per Week

Statistics

		Pre- Intervention	Pre- Intervention
N	Valid	20	20
	Missing	0	0
Mean		5.4000	29.0000
Median		3.0000	36.0000
Mode		3.00	36.00
Std. Deviation		4.83844	11.07867
Variance		23.411	122.737
Range		15.00	28.00
Minimum		1.00	12.00
Maximum		16.00	40.00

Awareness of Using a Standardized Handoff Form is Recommended**Paired Samples Statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PreIntervention Q 12	2.50	18	.857	.202
	PostIntervention Q 12	4.11	18	.832	.196

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	PreIntervention Q 12 & PostIntervention Q 12	18	-.165	.513

Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	PreIntervention Q 12 – PostIntervention Q 12	–1.611	1.290	.304	–2.252	–.970	–5.300	17	.000

*Appendix Y***Knowledge of Evidence****T-Test****Paired Samples Statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre_KnowledgeEvidence	6.7222	18	1.07406	.25316
	Post_KnowledgeEvidence	8.8333	18	.92355	.21768

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Pre_KnowledgeEvidence & Post_KnowledgeEvidence	18	-.227	.364

Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Pre_KnowledgeEvidence - Post_KnowledgeEvidence	-2.11111	1.56765	.36950	-2.89068	-1.33154	-5.713	17	.000

Knowledge of Process**Paired Samples Statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre_KnowledgeOfProcesses	4.7222	18	1.07406	.25316
	Post_KnowledgeOfProcesses	9.0000	18	.59409	.14003

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Pre_KnowledgeOfProcesses & Post_KnowledgeOfProcesses	18	.184	.464

Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Pre_KnowledgeOfProcesses - Post_KnowledgeOfProcesses	-4.27778	1.12749	.26575	-4.83847	-3.71709	-16.097	17	.000

*Appendix Z***T-Test****Paired Samples Statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PreIntervention Q 3	1.39	18	.502	.118
	PostIntervention Q 3	3.06	18	.639	.151

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	PreIntervention Q 3 & PostIntervention Q 3	18	-.071	.778

Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	PreIntervention Q 3 – PostIntervention Q 3	-1.667	.840	.198	-2.084	-1.249	-8.416	17	.000

► T-Test**Paired Samples Statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PreIntervention Q 4	1.83	18	.707	.167
	PostIntervention Q 4	3.06	18	.639	.151

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	PreIntervention Q 4 & PostIntervention Q 4	18	.152	.548

Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	PreIntervention Q 4 – PostIntervention Q 4	-1.222	.878	.207	-1.659	-.786	-5.905	17	.000